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THE PSYCHOLOGICAL REVIEW.

SOME OBSERVATIONS ON THE ANOMALIES OF SELF-CONSCIOUSNESS.¹

(I.)

BY PROFESSOR JOSIAH ROYCE,
Harvard University.

In the present paper I shall venture to lay some stress upon certain familiar factors whose psychological influence upon the growth and the anomalies of self-consciousness, both in normal and in abnormal human beings, seems to me to have been, from the purely theoretical point of view, rather unduly neglected. In particular, I shall try to indicate how these theoretically neglected factors may help to explain certain well known types of variation, and of abnormality, to which the functions of self-consciousness, as they empirically appear, are subject. Meanwhile I shall of course avoid, in this paper, any positive reference to the distinctively metaphysical problems which the word self-consciousness easily suggests. The philosophical aspects of the problem of self-consciousness belong altogether elsewhere. Starting this evening with the mere empirical fact that any normal man has, as part of his mental equipment, conscious states and functions that involve, in one way or another, his experience, his knowledge, his estimate, or, in general terms, his view, of himself, and remembering that, in many defective and disordered people, these, the functions of individual self-

¹ A paper read before the Medico-Psychological Association of Boston, March 21, 1895.

consciousness, undergo changes of a manifold and interesting sort, I shall try to illustrate aspects of the purely psychological theory of our topic. I speak to practical men, who are also men of science. I need make then no apology for introducing here a problem which, whatever its difficulty, is full both of scientifically attractive, and of practically important elements. For surely the alterations and defects of the functions of self-consciousness are amongst the most frequent phenomena in the region of mental pathology.

I.

In its inner aspects and relations, what we mean by self-consciousness, in any one man, is an enormously complex function or rather a little world of functions. But this world of functions is centred about certain well known habits and experiences which at once serve, not to explain it, but in a measure to begin for us the definition of our problem. There are, namely, in any mature person, certain established motor habits, which, according as they appear to be intact or not, enable us at once to test, from without, the relative normality of whatever belongs to that which one may call the mere routine of an individual's self-consciousness. There are also certain inner experiences, in terms of which the normal individual himself, from moment to moment, can feel assured of the apparent naturalness of his own notion or estimate of himself. A mature man whose self-consciousness is normal, if his means of expressing himself are intact, must be able to explain 'who he is,' *i. e.*, he must be able to tell his name, his business, his general relations in life, and whatever else would be essential to the practical purpose of identifying him. Furthermore, his account of himself must be able to show an estimate by no means adequate or infallible, but at least not too wildly absurd, of his actual degree of social dignity, of his personal importance and of his physical capacity. He will to be sure quite normally estimate his value, his prowess, or even his social rank, not, in general, precisely as his fellows do. But this sort of estimate has its normal, if rather wide, limits of error. If these limits are passed, the man's account of himself proves the presence of a de-

rangement of self-consciousness. Finally, as to this account which the normal man can give of himself, he must show a certain degree of correctness as to what he can tell us of his body and of its present state. Here, of course, the limits of error are very wide, but are still pretty definite. A man is normally a very poor judge of his internal bodily states. But if he says he is made of glass, or that he is aware that he is a mile high, or that he is conscious of having no body at all, we recognize a disorder involving alterations of self-consciousness.

Within his own mind, meanwhile, and from his own point of view, a man normally self-conscious is more or less aware of a great deal about himself of which it is notoriously hard for him to give any exact account whatever. Yet this internally normal self-consciousness has, at any time, a definitive, if not easily definable content, which, in its relatively inexpressible complexity of constitution, far transcends what one expresses when he tells you his name, his place in life, his degree, or his notion of his bodily condition. This normal inner self-consciousness involves, in the first place, what we are now accustomed to call, from a psychological point of view, masses of somewhat vaguely localized bodily sensations, which, just in so far as they affect our general consciousness, are not sharply differentiated from one another. The origin of these sensations lies in the skin, in the muscles, and, in part, in the viscera. Moreover, the visual perception of the body, the auditory experiences of the sound of one's own voice, and yet other sensory contents, including the more general sensations of bodily movement, obviously determine, now more, and now less, the content or the coloring of normal self-consciousness. If any of these masses of sensory contents are suddenly altered, our immediate self-consciousness may be much changed thereby. Dizziness, sensations of oppression in the head, a general sense of bodily ill-being, a flushed face, a ringing in the ears,—any of these may involve what we primarily take to be a general alteration of our feeling of self, and only secondarily distinguish from the self as a separate and localized group of experiences. In general, the more sharply

we localize our sensations, and the more we refer them to external objects, the less do these sensory experiences blend into our total immediate feeling of ourselves. The localized or objectified sensory state appears as something foreign, as coming to us, as besetting us, or as otherwise affecting us, but not as being a part of the self; and only a relatively philosophical reflection regards even our perceptions as part of ourselves. Our more naïve self-consciousness tends to regard the sensory or immediate self as a vague whole, from which one separates one's definite experiences of this place on the skin, of this color or tone, or of this outer object.

Yet our inner notion of the self of self-consciousness is by no means confined to this cruder apperception of massive sensory contents. In addition, our normal mature awareness of who and what we are means what one may call a collection of feelings of inner control, of self-possession, or, as many would say, of spontaneity. If such feelings begin to be altered or lost, one complains of confusion, of a sense of self-estrangement, of helplessness, of deadness, of mental automatism, or of a divided personality. As a fact, since the associative processes always depend upon the conditions of which we are not conscious, our sense that we can and do rule our whole current train of conscious states is, as it is ordinarily felt, a fallacious sense. But if we cannot really predetermine, in consciousness, what idea shall next come to consciousness, but are dependent, even in the clearest thinking, upon the happy support of our associative mechanism, it is still normal to feel as if, on the whole, our inner process were, in certain respects, relatively spontaneous, *i. e.*, as if it were controlled by our ruling interests and by our volition. This sense of inner self-possession is, to be sure, an extremely delicate and unstable affair, and is constantly interfered with, in the most normal life, not only by a series of uncontrollable sensory novelties, due to the external world, but by baffling variations, either in the play of our impulses and ideal associations, or in the tone of our emotions, or in both. Yet, when we are alert, these little interferences continually arise only to be subordinated. We

have perhaps momentary difficulties in recalling names or other needed ideas, of an imperfectly learned group, or we feel equally momentary indecisions as to what it is just now best to do, or we find our attention wandering, or our emotional tone disagreeably insistent, or our impulses numerous and wayward. But in all such cases we can still, in the normal case, 'keep hold of ourselves,' so that we accept as our own whatever content triumphs in the play of associative processes, and find our essential expectations met, from moment to moment, by the inner experiences which form the centre of the mental field of vision. If this rule no longer holds of our inner life, then our self-consciousness begins to vary, and we suffer from confusion or from other forms of the sense of lost inner control.

Thus the self of ordinary self-consciousness appears at once as a relatively stable group of unlocalized sensory contents or contents of feeling, and as the apparent controller of the train of associated ideas, impulses, and acts of attention or of choice. Of course these two aspects of the self are closely related. It is the associative potency of the ruling feelings and interests that most secures the fact and the sense of inner self-control. But meanwhile the self also seems, or may seem, to its possessor, much larger than any group of facts or of functions now present. One notoriously regards the present self as only the representative of a self which has been present, in the remembered past of our lives, and which will be present in the expected future to which we look forward. Nor does self-consciousness usually cease with this view. The characters, attributes, functions, or other organic constituents of the self commonly extend, from our own point of view, decidedly beyond anything that can be directly presented in any series of our isolated inner experiences, however extended. When one is vain, one's self-consciousness involves the notion that one's self really exists, in some way or other, for the thoughts and estimates of others, and is at least worthy, if not the possessor, of their praise or of their envy. When one feels guilty, one does not and cannot abstract from the conceived presence of one's self in and for the experience of a real or ideal judge of one's

guilt. In all such cases the self of self-consciousness thus appears as something that it would not and could not be were there not others in the world to behold, or to estimate it, to be led or otherwise influenced by it, or to appeal to it. It is now from such points of view that the self of self-consciousness comes, in the end, to get form as a being who takes himself to have a social position, an office, a profession,—in brief, a vast group of functions without which the self would appear itself to be, relatively speaking, a mere cipher, while these functions are at once regarded as organically joined to the self, and centered in it, and, nevertheless, are unintelligible unless one goes beyond one's private consciousness, and takes account of the ideas and estimates of other people.

Every normal man thus knows what it means to be a person with a social position, or a dignity, or a place in the world, or a character, a person vain of himself, or ashamed of himself, or socially confident or timid about himself, or otherwise disposed to view himself either as others seem to view him, or as he fancies that they ought to view him, or as he has faith that God views him. And such a view of one's self cannot be satisfied with any group of inner facts, however extensive, as containing within it the whole of one's ego. This view conceives the office, calling, dignity, worth, position, as at once a possession, or a real aspect, of the self, and as a possession or an aspect that would vanish from the world were not the self conceived as existing for others besides itself, in other words, were not the self conceived as having an exterior as well as an interior form of existence.

The self of normal self-consciousness, then, is felt at any moment as this relatively stable group of inner states; it is also felt or conceived as the supposed spontaneous controller of the general or of the principal current of successive conscious states; it is remembered or expected as the past or future self, which is taken to be somehow more or less precisely the same as the present self; and finally, it is viewed as having a curious collection of exterior functions that involve its actual value, potency, prowess, reputation, or office, in its external social relations to other actual or ideal selves, *e. g.*, to its neighbors, to humanity at large, or, in case one's faith extends so far, to God.

And, now, just as the immediate self of the mass of inner sensations and feelings can vary, or just as the self of the sense of self-control can be more or less pathologically altered; so too the identical or persistent self of memory can be confused, divided, or lost, in morbid conditions; and so too finally, the self of the social type of self-consciousness is subject to very familiar forms of diseased variation. The social self above all can come to be the object of a morbidly depressed or exalted inner estimate. One's social prowess, position, office and other relations, both to God and to man, can be conceived in the most extravagantly false fashions. And furthermore, as I wish at once to point out, the most noteworthy alterations of self-consciousness, in insanities involving delusions of suspicion, of persecution and of grandeur, appear upon their very surface as pathological variations of the social aspect of self-consciousness. Note at once the possible significance of this fact. However you explain delusions of guilt, of suspicion, of persecution and of grandeur, however much you refer their source to altered sensory or emotional states, they stand before you, when once they are well developed, as variations of the patient's habits of estimating his relations to other selves. They involve, then, *maladies of the social consciousness*. The theoretical significance of this fact surely seems worthy of a closer consideration than it customarily receives.

Since the psychologist, as such, can afford to be quite indifferent to the question whether any real being, to be called an Ego, exists, or not, and since he is therefore still less interested in the philosophical problem as to the forms of being which a real Ego can possess, in case it exists,—I am here very little concerned to answer one question which these latest considerations may have already suggested to some of you. I mean the question whether an Ego really can possess that equivocal sort of exterior existence, outside of its own train of conscious experience, which, as we have seen, the social sort of self-consciousness seems to attribute to the self. When I feel humble or exalted, abased or proud, guilty or just, or when I say, 'I am in this social office or position,' I seem to myself as one whose actual nature and functions

include more facts than can ever be crowded into my own consciousness. For unless I believe in my real relations to my neighbors or to God, and conceive those relations as somehow a part of myself, I should have no material out of which to weave my notion of my rank, or my duties, and of my external importance. But whether this idea of myself is defensible or not, from a philosophical point of view, is far from us here. It is enough for us that a man commonly has just such a view as to his own nature, and that pathological variations of such a view are familiar and important phenomena.

II.

In the foregoing sketch, I have been simply reporting familiar psychological phenomena. That our human self-consciousness involves all these various elements, is, one may say, agreed. The problem is, how have all these elements come thus to hang together? And so we next have to attack the central problem just mentioned, *i. e.*, we have to ask, in a purely psychological sense: How does this elaborate mental product called self-consciousness get formed out of these numerous elements and why, when once formed, is it so variable, and, finally, why, when it varies, does it vary in the directions so frequently reported?

It is here that our theoretical knowledge is at present so poor. The collection of observed facts is, to be sure, at present, considerable. Readers of Ribot's book on the 'Diseases of Personality,' know of the general types of varying self-consciousness to which attention has been most attracted. Loss of the sense of personality; or again, the delusion that one is dead, or is lost, or is an automaton; or the feeling or idea that there is a foreign or other self within one; or the attribution of one's own thoughts, or acts, to another and wholly external person or persons; or the alternation or the apparently actual multiplication of one's own personality; or the refusal to regard one's present self as identical with one's past self: such are some of the variations to which self-consciousness is subject, in addition to the before-mentioned alterations of

the obviously social type of self-consciousness. But when we ask why any of these alterations takes place, we have so far only one unquestionable, but theoretically inadequate answer, viz.: In all such cases there are alterations of the common sensibility, or of the memory, or of both. Now one sees, without doubt, that self-consciousness involves the common sensibility, in the sense before indicated. One sees then that if this core of normally stable, vaguely localized sensory conditions and feelings gets altered, one's notion of one's self may also naturally change. And, not to leave the limits of ordinary experience, one knows and understands what it means to say, when these central masses of feeling do more or less change: 'I feel queer; I feel altered; I am no longer quite myself; I am not my old self.' By a little stretch of imagination one can also understand such a delusion as 'I am made of glass,' quite as well as one can understand any other delusion. For here our dreams help us to see our way, and we have only to suppose that a certain association of ideas, whereby a partial anæsthesia gets interpreted, becomes fixed, and exclusive, in order to see how the delusions as to bodily condition or constitution, present in a measure in all hypochondriacs, can assume such extreme forms. Just so too the mere assertion 'I am lost,' or 'I am dead,' is, on the face of it, just an insistent verbal statement, or at best an inner judgment whose exclusive presence in consciousness is due merely to morbid habit, and whose meaning or logical consequences we often need not suppose the patient to develop in any delusionally definite form at all. These phenomena involve, where they are alone, or are segregated from the rest of the patient's life, rather pathological simplifications of the contents of consciousness, morbid associations of sensations with simple groups of words or of ideas, than any other processes. So far, then, we see some light.

But now the case is otherwise when one says: 'There are two of me,' and proceeds actively to develop the consequences of this inner variety of self. Here, to be sure, the phenomena of dreams, and of the commoner forms of transient delirium, as in fevers, bring this sort of doubleness

within the remembered experience of very many persons; and familiar moral and poetical statements about the two selves or more that dwell in one's breast, assimilate such experiences to those of normal people. But one's consciousness, in such cases, throws little direct light upon how the phenomena arise. Sometimes, to be sure, in delirium their basis is plainly hallucinatory, as when a fever patient sees himself, in bodily presence, standing at a distance, or lying in the bed. But even then one wishes for more light as to the question whether and how such a tendency to pathological duplication has any natural foundation in the understood habits of normal life. This problem seems even the more insistent when one observes that the sense of the inwardly doubled personality often arises without any obvious basis in hallucinations of the special senses. But in such cases, our present theories often fall back again upon the variations of the common sensibility. Yet here one fails to see how any easily conceivable alteration in the contents of the central core of the sensory self is by itself sufficient to explain a tendency to apperceive that self as double. One does not doubt the existence, in such cases, of an altered common sensibility; what one fails to follow is the link between such alteration, and the new habits, of judgment, or of apperception, which tend to get formed upon this basis.

But I do not wish to burden you with a mere enumeration of problems, and I will not here further dwell upon the inadequacies of the current theories of the factors of self-consciousness, whether these theories lay stress upon the common sensibility, or upon the memory, as the principal factor in their explanations of the variations of the ego. It is only necessary to show that, while both the common sensibility and the memory are certainly largely concerned in the constitution of the self, the problem of self-consciousness is not thus to be fully solved. One must look to other factors as well. One has in fact only to remember that some large alterations of the common sensibility seem to involve very little change of self-consciousness at all, in order to see how complex the problem is.

And now, as to the real problem itself, it is surely one relating to the origin, to the nature and to the variations, of a certain important collection of mental habits. What are these habits? How do they arise? I insist, a mere catalogue of the contents of self-consciousness helps us little, unless we can interpret the facts in terms of the known laws of habit. For a man is self-conscious in so far as he has formed habits of regarding, remembering, estimating, and guiding himself. And now whenever these habits are in play, they all of them, as I must next insist, have a common and noteworthy character. If a man regards himself, as this individual Ego, he always sets over against his Ego something else, viz.: some particular object represented by a portion of his conscious states, and known to him as his then present and interesting non-Ego. This psychological non-Ego, represented in one's conscious states, is of course very seldom the universe, or anything in the least abstract. And, for the rest, it is a very varying non-Ego. And now, it is very significant that our mental habits are such that the Ego of which one is conscious varies with the particular non-Ego that one then and there consciously seems to encounter. If I am in a fight, my consciously presented non-Ego is my idea of my opponent. Consequently I am then conscious of myself as of somebody fighting him. If I am in love, my non-Ego is thought of as my beloved, and my Self, however much the chord of it pretends, trembling, to pass in music out of sight, is the Self of my passion. If I strut about in fancied dignity, my non-Ego is the world of people who, as I fondly hope, are admiring me. Accordingly I then exist, for myself, as the beheld of all beholders, the model. If I sink in despair and self-abasement, my non-Ego is the world of the conceived real or ideal people whose imagined contempt interests, but overwhelms me, and I exist for myself as the despised Ego, worthy of their ill will. When I speak, my non-Ego is the person or persons addressed, and my Ego is the speaker. If I suddenly note that, though I talk, nobody marks me, both the non-Ego and my Ego dramatically change together in my consciousness. These two contents of consciousness, then, are psychologically linked. Alone, I am so far not myself.

My consciousness of my Ego is a consciousness colored by my conceived relations to my endlessly changing consciousness of a non-Ego. And notice, I speak here as little of any metaphysically real non-Ego as I speak of any metaphysically real Ego. The whole question is here one of mental states and of the actual habits of their grouping not of relative, nor yet of real relations outside of consciousness. I point out merely the fact that, according as one chances to conceive thus or thus the non-Ego of his strongest current interest, even so, on the other hand, he conceives his Ego thus or thus, viz., as something related to this non-Ego, opposed to it, concerned in it, possessor of it, crushed by it, desirous of winning it, or however the play of habit and of interest makes the thing seem. Here, I think, lies the real key to all the variations of Self-consciousness, whether their conditions involve the common sensibility or not.

The psychological problem of self-consciousness reduces itself, then, to the following form. One must ask: How has one come to form all these habits of drawing a boundary, in one's consciousness, between mental states that represent a non-Ego, and mental states that clump themselves together into the central object called the Ego? One must also ask: Whence comes all this material for variation, whereby the content called the Ego shifts endlessly as the content called the non-Ego alters? And one must further inquire: How do the constitution and the variations of the Ego get that intimate relation to the sensations of the common sensibility upon which we have laid stress from the start?

Now to all these questions, as I hold, the recent study of childhood has tended to suggest at least a plausible answer. The substantial basis for the answer that I shall suggest has been reached, pretty independently, by my friend Professor Baldwin, of Princeton, and by myself. Professor Baldwin has given to some aspects of the matter, so far as concerns child life, a much fuller working out than I have done, both in his earlier papers and in his recently published book called *Mental Development in the Child and the Race*. On the other hand, in a recent discussion in the *Philosophical Review* (of Cornell) I have stated my own notions as to certain philo-

sophically important aspects of the growth of self-consciousness. But the application of these theoretical considerations to the study of the pathological variations of self-consciousness in the present paper is, I think, new.

The early intellectual life of the child is lost to us in obscurity, despite numerous recent observations. But we are clear that the infant, in the first months of life, has nothing that we should call self-consciousness. But the first clear evidence that we get of the presence of a form of self-consciousness intelligible to us comes when the infant begins to be observantly imitative of the acts, and later of the words, of the people about it. In other words, the first Ego of the child's intelligible consciousness appears to be, in its own mind, set over against a non-Ego that, to the child, is made up of the perceived fascinating, and to its feeling more or less significant, deeds of the persons in its environment. From this time on, up to seven or eight years of age, any normal child remains persistently, although perhaps very selectively, imitative, of deeds, of habits, of games, of customs, and often of highly ideal and perhaps quite imaginary models, such as are suggested to it by fairy-stories and other such material. As one follows the growth of these imitative tendencies, from their initial and quite literal stages, through those stages of elaborate impersonation and of playful, originally colored, often enormously insistent games, in which the child follows all sorts of real and fantastic models, one is struck by the fact that any normal child leads, relatively speaking, two lives, one naïve, intensely egoistic from our point of view, but relatively free from any marked self-consciousness in the child's own mind, while his other life is the life in which he develops his conscious ideas and views of himself as a person. The relatively naïve life is the life of his childish appetites and passions; the relatively self-conscious life is the life of his imitations and dramatic impersonations, of his poses and devices, of his games, and of his proudly fantastic skill, and of the countless social habits and attitudes that spring up from this source. The two lives mingle and cross in all sorts of ways. But the child who merely eats, cries, and enjoys his physical well-being, is not

just then self-conscious as is the child who plays horse, or hero, or doctor, or who carefully tries to follow a model as he draws, or to invent a trick as good as one that he has seen. The latter child, however, is essentially imitative, first of persons, then of ideas, then of the facts of the physical world as such. But the former child is simply the creature of natural impulses and passions, and would never come to self-consciousness, in our sense, if his life were not gradually moulded by the elaborate habits which the imitative child constantly introduces.

Now the psychological importance of imitation lies largely in the fact, that in so far as a child imitates, he gets ideas about the inner meaning or intent of the deeds that he imitates, and so gets acquainted with what he early finds to be the minds of other people. The child that repeats your words, slowly learns what they mean. The child that uses scissors, pencil, or other tools after you, learns, as he imitates, what cutting means, and what drawing, or other such doings. And as he thus learns, he gets presented to his own consciousness contents, which he regards as standing for those of your mind. The experienced interesting outcome of an imitated deed, is for the child the obvious meaning of that deed, for you, as you did it. But he does not get these contents,—these glimpses of your meaning,—he does not get them, at first, very easily. He gets them by persistently watching you, listening to you, playing with you, trying to be like you, all activities that for him involve muscular sensations, emotional concerns, and still other variations of his common sensibility. These efforts of his to grasp your meaning are marked and often delightful incidents of his consciousness. He returns over and over to his favorite games with you. He encounters every time your meaning, and he sets over against it those experiences of his own doings, whereby he comes to participate in your meaning. Here now the child always has present to him two sets of contents, both fascinating, each setting the other off sharply by contrast, while the contrast itself establishes the boundary between them. The first set of contents are his perceptions of your deeds, and his representation of your discovered mean-

ing in these deeds. The second set of contents are his own imitative acts themselves, as perceived by himself, these acts, and his delights in them. The first set of contents depend upon you. The child feels them to be uncontrollable. As perceptions, and as representations, these contents do not get closely linked to the child's common sensibility. They stand off as external although welcome intruders. On the other hand, the other set of contents, the child's own newly discovered powers, due to his imitation, are closely centred about his common sensibility, are accompanied with all the feelings which make up the sense of control, and get remembered, thenceforth, accordingly. The first set of contents form the psychological non-Ego of this particular phase of consciousness. The second set of contents form the psychological Ego corresponding thereto. One sees why the Ego-part of this sort of consciousness includes the common sensibility, and the sense of voluntary control, and why the non-Ego here involves contents that are set off by the contrast as uncontrollable, and as not closely linked to the common sensibility. And it is in this contrast that the source of true self-consciousness lies. We do not observe a given group of mental contents as such unless they are marked off by contrast from other contents. One could have all the common sensibility you please, and all the feelings of voluntary control, without ever coming to take note of this totality of united or centralized mental contents as such, and as clearly different from the rest of one's field of consciousness. Even now we all of us tend to lose clear self-consciousness so soon as we get absorbed in any activity, such as rowing, hill-climbing, singing, whistling, looking about us at natural scenery,—any activity I say, whose object does not, by the sharp contrast between its own external meaning and our efforts, call our attention to our specific relation to some non-Ego. Yet in lonely rowing and hill-climbing the common sensibility is as richly present as it is in many of our most watchfully self-conscious states. On the other hand, when I work hard to make my meaning clear to another man, or to make out what he means, I am self-conscious, just in so far as I contrast my idea of his ways and thoughts, with my own

effort to conform to his ways and thoughts. And just such an effort, just such a contrast, seems to mediate the earliest self-consciousness of the imitative child, and to secure the tendency of the self to be built up about the common sensibility, while the not self gets sundered therefrom. So then one sees the rule:—If one is keenly self-conscious, the common sensibility must be central. But, on the other hand, one may have a rich common sensibility without any keen self-consciousness. It is the contrast of Ego and non-Ego that is essential to self-consciousness.

But of course the child's relations to the varying non-Ego of consciousness do not remain merely imitative. When once he has other minds in his world, the function whose essence is the contrast between his conceptions of these minds and his view of his own response to them, can take as many forms as his natural instincts determine. His naïve life of appetites gets gradually infected by his conscious relations to other people. He wants good things, and perhaps must feign affection or show politeness, or invent some other social device, to get what he wants. Here again is an activity depending upon and bringing to light, the contrast between his own intention, and the conceived or perceived personal traits and whims to which he conforms his little skill. He learns to converse, and gets a new form of the contrast between the sayings of others (which he interprets by listening), and his own ideas and meanings. He reaches the questioning age, and now he systematically peers into the minds of others as into an endlessly wealthy non-Ego, in whose presence he is by contrast self-conscious as an inquirer. Here, every time one has the essential element of contrast upon which all self-consciousness depends. Argument and quarreling later involve similar contrasts. As to the external physical world,—what the child shall most care for in that, is largely determined for him by his social relations. Whatever habit he has acquired by social imitation, he can, therefore, in the end, apply to things as well as to persons. As a fact he is notoriously often animistic, directly transferring social habits to physical relations, and regarding things as alive. And here again he becomes self-conscious, by contrasting his own

activities with the conceived natures and meanings of external things. I do not at all suppose that the child regards all natural things in an animistic way; but I am of opinion, for reasons which I have set forth elsewhere, that our whole tendency to distinguish as sharply, as we all now do, between the self and the external physical world, is a secondary tendency, due in the child's case, to social influences. It is language, it is the accounts that people give to us of things, it is the socially acquired questioning habit,—it is such things that extend the contrast between Ego and non-Ego, at first mainly a social contrast, to the relations between one's own mind and one's physical environment. Even now, as I just pointed out, if we forget that nature is full of thinkable mysteries, of meanings, of laws, of other ideal contents whose significance we do not comprehend,—if we forget this, and lapse into mere busy and absorbing physical experience, as when climbing hills alone, or rowing, or cheerily whistling as we walk, we forget to be self-conscious, just because we lose sight of the sharper contrasts of Ego and non-Ego.

III.

But, to return to the explicitly social relations, there is still another factor to note in our early relations to our conceived social non-Ego. And this is the fact that, by our instinctive mental constitution as moulded by our social habits, we are early subject to a vast number of more or less secondary emotions, each one of which involves large alterations of the common sensibility, while all of these particular emotions arise under circumstances which make explicit the contrast between one's self, and one's idea of one's fellow's mind. Such emotions we get as children when people praise us, blame us, caress us, call us pet names, stare at us, call us by name, ask us questions, and otherwise appeal to us in noteworthy ways. Such emotions too we get again, in novel forms, in youth, when the subtle coloring of the emotions of sex begins to pervade our whole social life. Such emotions are shame, love, anger, pride, delight in our own bodily seeming as displayed before others, thrills of social expectation, fears of appearing ill in the eyes of others.

Such emotions involve blushing, weeping, laughter, inner glow, visceral sensations of the most various kinds, and feelings of the instinctive muscular tensions related to our countless expressive social deeds. These experiences are, however, aroused by situations all of which essentially involve the aforesaid contrast between our own ideas, wishes, or meanings, and the conceived states of other minds. Hence these emotional states associate themselves, as variations of the common-sensibility, first, with social situations, *i. e.*, with cases where Ego and non-Ego are sharply contrasted; and then especially with the Ego-member of the relation of contrast. And so, altogether by the force of habit, these emotions, which if primarily aroused would be mere content, belonging neither to Ego nor to non-Ego, come to be the specific emotions of self-consciousness, so that now whenever we have just these emotions, from any cause whatever, we are at once keenly self-conscious,—and that merely because the emotions in question faintly or keenly suggest particular social situations. Emotions that have had no such constant relation to social situations, involve no such marked states of self-consciousness. Fear of physical dangers tends to diminish our self-consciousness; shame intensifies it. Yet keen physical fear, as the more primitive emotion, involves vaster commotions of the common sensibility than does shame. Were then the marked presence or variation of the common sensibility in consciousness the sole and sufficient cause of the presence or of the variation of one's immediate or sensory Ego, physical terror would make one more self-conscious than does shame. But panic fear, in its intensest conscious forms, involves rather a destruction than a positive alteration of self-consciousness; while the most abject shame grows the more intensely self-conscious as it gets the more marked. Why? Because shame, habitually associated only with social situations, suggests them even where it is pathological and is not due to them; and so it brings to consciousness the contrast of Ego and non-Ego.

Thus, then, it is that I propose to explain what the current theories of self-consciousness usually seem unable to deal with, *viz.*, the before-mentioned fact that certain pathological

variations of the common sensibility profoundly alter the tone or constitution of a patient's self-consciousness, while others, equally intimate and vast, either leave self-consciousness relatively intact, or simply put it wholly out of sight without first tampering with its integrity. When a man has the colic he does not say, 'My Ego is deranged.' His account of the case is far less metaphysical. But when, as in the depression after the grip, he has certain very much dimmer and more subtle alterations of the common sensibility, he may complain of precisely such a sense of alienation from himself. Why? Well, as I should say, the colic suggests no social situation; the vague depression after the grip may dimly suggest, by habit, situations of social failure, or confusion, or powerlessness, such as, from sensitive childhood until now, have played their part in one's life. The suggestion may be very faint, and utterly abstract. No particular failure, no special case of social helplessness, comes to mind. But our nascent associations can be present in all degrees of faintness; and here I maintain are associations dimly involving social contrasts between Ego and non-Ego. Here, then, are conditions for the function of self-consciousness.

Since the emotional alteration of the common sensibility has thus the most various habitual relations, now with our unsocial physical states as such, now with social activities, one sees how it is possible for a nervous sufferer to say, on one day, that he personally feels his very being wrecked, and his self-hood lost or degraded, while on another day he may simply declare that he suffers keenly, but regards the affair as a mere physical infliction, external to his central self-hood. In the physical sufferings of sensitive women this shifting of the enemy's ground from the region of the physical or psychical pain felt as a mere brute fact, hateful but still bearable, to the region where the sufferer complains of an intolerable loss of self-possession, is notoriously a common and, to the sufferer herself, a puzzling incident. Both times the common sensibility is deeply affected, often in ways not subjectively localizable; the difference, I think, must be due to the nascent associations of the common sensibility now

with ideas of social situations, now with ideas of unsocial bodily events. There are some chronic neurasthenic sufferers who, despite headaches, spinal pains, and other distorted sensations innumerable, preserve for years a marvelous self-possession in face of their disorder; very many other such nervous sufferers, of the same general type, are throughout self-consciously cowardly and abject. One cannot assert that the latter class are more deranged in common sensibility than are the former. But many a neurasthenic man has really little to complain of *except* the unspeakable wretchedness of his deranged self-consciousness. How can one explain such phenomena without resort to the principles of habit and association? The social habits, however, of the type now defined, at once furnish a *vera causa* for the interpretation of some sensory disturbances as alterations of self-consciousness, while other disturbances, equally great and vague, get interpreted by the sufferer as merely external events. To be sure we cannot yet give an exhaustive classification of the variations of the common sensibility into those closely associated with social situations, and those not associated, or but slightly associated, yet the contrast of physical fear and of shame has already shown us that such a classification might, with care, be more or less worked out. We know, for instance, that the sexually tinged emotions normally have very complex social associations. Consequently, we may expect to find self-consciousness especially deranged in disorders involving the sexual functions. This expectation seems to be abundantly verified, even in ordinary cases of disorder, such as the teacher of youth may sometimes see as well as the doctor; and if one wants more verification, one may get it at will from the monumental records that fill Krafft-Ebing's too well-known and ghastly book. On the other hand, a sufferer from the emotional states accompanying ordinary physical exhaustion, or from some forms even of grief, or from a severe cold that does not give the form of depression now associated with the grip, or from some forms of even violent headache, often wonders how much pain and emotional alteration he can endure without any proportionate alteration of self-consciousness. And

these states are precisely such forms of consciousness as are not so closely associated with social situations. Finally, the emotions connected with laughter furnish an almost perfect natural experiment for our purpose. There are three principal sorts of laughter: the laughter of mere physical glee-fulness, such as appears much in children, less in adults; the laughter of scorn, and the laughter of the sense of humor. The first is not an especially self-conscious affair; but the laughter of scorn and of a sense of humor are both of them always keenly self-conscious, involving what Hobbes called 'sudden glory in him that laugheth.' The emotions of the two latter types involve social situations, present or suggested. I shall find no time to point out at any length the application of the foregoing analysis to the study of the associative alterations of the socially tinged self-consciousness in true melancholia, in mania, or in the exaltation of general paralysis. But the mention of such alteration of the self brings us at once to the next and final stage of our inquiry.

IV.

I have so far spoken of self-consciousness as it appears in more or less explicitly social relations. But, one may reply, "Are we not, at pleasure, self-conscious when we are quite alone? Does not one reflect, does not one judge one's self? Is lonely meditation free from self-consciousness? Is not conscience a self-conscious affair? And yet in such cases does one contrast an Ego with any literal non-Ego? In such processes is not the Ego explicitly related to just the Ego, alone by itself? And are there not, in the phenomena of insanity, many alterations of this sort of purely internal self-consciousness?" I reply at once that my theory is precisely *that habits once acquired in social intercourse can and do hold over when we are alone, and can then apply within the content of one's own mind.* The transition is simple. First I can dramatically remember my actually past imitative deeds, my quarrels, my successful social feats, my chagrins, my questionings, my criticisms of others, and the bearings of others towards me. In all such cases I am self-conscious over again in memory, by virtue of our now familiar contrast-

effect. Further, as just seen, my emotions can vaguely suggest social situations, indefinite in character to any degree. By coalescence, a vast group of social habits of judging others, and of feeling myself judged by them, can get woven into a complex product such as is now my conscience. Conscience is a well-knit system of socially acquired habits of estimating acts—a system so constituted as to be easily aroused into conscious presence by the coming of the idea of any hesitantly conceived act. If conscience is aroused in the presence of such a hesitant desire to act, one has, purely as a matter of social habit, a disposition to have present both the tendency to the action, and the disposition to judge it, standing to one another in the now familiar relation of Ego and non-Ego. Which one of them appears as the Ego, which the non-Ego, depends upon which most gets possession, in the field of consciousness, of the common sensibility. If the tendency to the estimated act is a passionate tendency, a vigorous temptation, and if the conscientious judgment is a coldly intellectual affair, then the situation dimly reminds me of cases where other people, authoritative and dignified rather than pleasing, have reproved my wishes. Conscience is then the colder non-Ego, the voice of humanity, or of God. My common sensibility merges with my passion. The reproof perhaps shames me; yet *I* want to have my way; only that other, that authoritative inner non-Ego, my conscience, will not let me go free. But if, on the other hand, the conceived act is less keenly desired, and if my conscientious plans are just now either fervently enthusiastic or sternly resolute in my mind, then it is my conscience which merges with my common sensibility, and I myself am now, in presence of the conceived act, as if judging another. I feel then secure in my righteousness, and I look with disdain upon that which would tempt me if I were weaker, but which now is a mere non-Ego. It is in a similar fashion, by a dramatic imitation not of actual, but of abstractly possible social relations, that I can question myself, and wait for an answer, can reflect upon my own meaning, can admire myself, love myself, hate myself, laugh at myself, in short do or suffer in presence of my own states and processes whatever social life

has taught me to do or to suffer in presence of the states and processes of others. In every such case the central Ego is so much of my conscious process as tends more to merge with the common sensibility. My inner, but more peripheral, relative non-Ego is so much of my conscious process as tends more to resemble, in interest, in general tone or in uncontrollable unexpectedness, the experiences which, in ordinary social life, are due to other people. Yet since all these inner contrasts are constantly corrected by my habits of external perception and of memory, which remind me all the while of a literal non-Ego outside of all these processes, this inner sundering normally remains only, as Professor Ladd has called it, dramatic—a sort of metaphor, which I can correct at pleasure, saying at any moment, “but all this is merely Ego, after all. The real non-Ego is the world of live other people yonder.”

Thus the normal inner life of reflection, of conscience, of meditation, and of the so-called ‘spiritual Ego’ in general, is simply, in us human beings, an imitation, a brief abstract and epitome, of our literal social life. We have no habits of self-consciousness which are not derived from social habits, counterparts thereof. Where the analogy of our relations to our fellows ceases, reflection ceases also. And this is precisely what constitutes the limitation of our reflective processes in philosophy and in psychology.

But surely, if this summarizes the conditions of our normal self-consciousness, when we are thinking alone, it also gives room for indefinitely numerous abnormal variations. Suppose that there appear in the conscious field hallucinations of the muscular sense, of the sort so well described in Cramer’s noted monograph. Let these be motor speech hallucinations. Then the patient may observe the puzzling phenomenon that, whenever he thinks, there is some mysterious tendency present that aims to objectify his thoughts, in spoken words. Somebody or something either takes his own thoughts away from him and speaks them, or forces him, willy nilly, to speak them himself. The thoughts are his own. The sounding of them forth, in this way, is not his. His thoughts run off his tongue, get spoken in his

stomach, creak out in his shoes as he walks, are mockingly echoed or in the end commented upon by another power. This other power, this stealing of his thoughts, involves of course a deep disturbance of his self-consciousness, which tends gradually to pass over into a regular system of delusions. Yet what does the process mean? It means, at first, merely the appearance of uncontrollable elements of consciousness, which by virtue of the habits connected with the uncontrollable in general cannot get merged in the common sensibility, and which are yet in a problematic and painfully intimate relation to what he does recognize as his own. This foreign power need not for a good while behave *enough* like the true voice of another to become a genuine hallucinatory comrade or enemy, as it would do and does if the patient hears his voices without of himself recognizing their close relation to his stream of thought. But in this uncontrollable hallucinatory thinking aloud there is enough suggestion of the foreign to make the patient feel that his own thoughts are getting somehow estranged from him. That these are his own thoughts he at first knows, by virtue of the general contrasts between real Ego and real non-Ego still present to him. That they are getting estranged he knows, for that is to any one a relative non-Ego which behaves more or less as one's original social non-Ego, one's fellow in society, behaves. His behaviour is relatively uncontrollable; and so is here that of the patient's thoughts.

Or again, suppose that one's depressed emotional condition, as in melancholia, or at the outset of a delirium of suspicion or of persecution, contains emotions resembling the normal emotions of conscientious guilt, or the feeling of social dread. Then these feelings tend to assimilate in one's actual surroundings, or in one's memories, data which suggest, to one patient an actually believed social condemnation of his deeds, or an actual judgment of his inner conscience passed upon his sinfulness, while to another patient his own sorts of emotion suggest an especially hostile scrutiny of his appearance by the passers by, or an inner sense that he must hide from possible scrutiny. On the other hand, feelings quite the reverse of these suggest to the exalted general

paralytic whatever remembered or fancied social relations, expressing his vast powers, the fragments of left-over social habits which still survive in his chaos permit him, in passing, to express.

Or, once more, another patient has present to consciousness two or more streams of feelings, impulses, thoughts, which are sharply contrasted with one another, while the portions of each stream more or less hang together, by virtue of common contents or tone. All of these streams belong to his general Ego,—this he recognizes by the normal contrast with the actual external world. But meanwhile they have their inner contrast, which is no longer, like the just mentioned contrasts in normal consciousness, a source of merely dramatic metaphor. This abnormal contrast is intense, uncontrollable, continuous. Now let the reflections or the context of these streams be such as in any fashion to remind the patient of any social relation, contest, rivalry, quarrel, criticism, pity, questioning, discussion; and then the patient can only say: 'There are in me two or more selves, I am divided.' If one of the streams involves more of the common sensibility than does the others, or more of the sense of control, the patient may speak of the less favored streams as other selves, or as the 'Other Fellow' without having any full-fledged delusion of a real outside oppressor. And in all this there will be mere associations of ideas, mere socially acquired habits,—no new mysteries of self-hood whatever. Yet how complex the physical and psychological background of such abnormal habits may be, I will try to illustrate, as I close, by a single case.

(To be concluded.)

ON DREAMING OF THE DEAD.

BY HAVELOCK ELLIS.

London.

We know that among savages in many parts of the world it is held that the soul in dreams leaves the body, to wander over the earth. Tylor and others have further shown that dreams play an important part in the evolution of belief in an after-world. So far as I am aware, however, no one has ever asserted that there is a peculiarity in the mechanism of dreams of the dead which powerfully suggests that our dead friends have only apparently died. For some years I have given attention to the psychology of dreaming, and collected the observations of my friends, and I wish here to draw attention to a certain type of dream, and to point out its significance from a primitive point of view, as a factor in the wide-spread belief that death is only a transitory and apparent phenomenon. I am only able to present two series of dreams, occurring to two individuals, intimate friends of my own. The individuals in question are very unlike each other in character and temperament; the dreams were carefully recorded at the time (an indispensable point in the study of dreaming); and it is possible to exclude entirely the influence of suggestion, as each dreamer's dreams were unknown to the other dreamer.

Observation I.—Mr. C., age about 28, a man of scientific training and aptitudes. Shortly after his mother's death he repeatedly dreamed that she had come to life again. She had been buried, but it was somehow found out that she was not really dead. Mr. C. describes the painful intellectual struggles that went on in these dreams, the arguments in favor of death from the impossibility of prolonged life in the grave, and how these doubts were finally swallowed up in a sense of wonder and joy because his mother was actually there, alive, in his dream.

These dreams became less frequent as time went on, but some years later occurred an isolated dream which clearly shows a further

stage in the same process. Mr. C. dreamt that his father had just returned home, and that he (the dreamer) was puzzled to make out where his mother was. After puzzling a long time he asked his sister, but at the very moment he asked it flashed upon him—more, he thinks, with a feeling of relief at the solution of a painful difficulty than with grief—that his mother was dead.

Observation II.—Mrs. F., age about 30, highly intelligent but of somewhat emotional temperament. A week after the death of a life-long friend to whom she was greatly attached, Mrs. F. dreamed for the first time of her friend, finding that she was alive, and then in the course of the dream discovering that she had been buried alive.

A second dream occurred on the following night. Mrs. F. imagined that she went to see her friend, whom she found in bed, and to whom she told the strange things that she had heard (*i. e.*, that the friend was dead). Her friend then gave Mrs. F. a few things as souvenirs. But on leaving the room Mrs. F. was told that her friend was really dead, and had spoken to her after death.

In a fourth dream, at a subsequent date, Mrs. F. imagined that her friend came to her, saying that she had returned to earth for a few minutes to give her messages and to assure her that she was happy in another world and in the enjoyment of the fullest life.

A third dream occurred more than a year later. Some one brought to Mrs. F., in her dream, the news that her friend was still alive; she was taken to her and found her as in life. The friend said she had been away, but did not explain where or why she had been supposed dead. Mrs. F. asked no questions and felt no curiosity, being absorbed in the joy of finding her friend still alive, and they proceeded to talk over the things that had happened since they last met. It was a very vivid, natural and detailed dream, and on awaking Mrs. F. felt somewhat exhausted. Although not superstitious, the dream gave her a feeling of consolation.

I have made few inquiries as to the frequency of this type of dreams. It does not appear to occur to every one. I can, however, record a slight personal observation.

Observation III.—I dreamed that I saw a dead friend, the editor of a psychological journal, alive and well in his room, together with two foreign psychologists also known to me, who had apparently succeeded him in the editorship of the journal, for I saw their names on the title-page of a number of it which was put in my hands. It surprised me that, though alive and well, he should have ceased to edit the journal; the theory by which I satisfactorily accounted to

myself for his appearance was that, though he had been so near death that his life was despaired of, he had not actually died; his death had been prematurely reported. It flashed across my dream-consciousness, indeed, that I had read obituaries of my friend in the papers, but this reminiscence merely suggested the reflection that some one had been guilty of a grave indiscretion.

This personal observation is inconclusive, the central difficulty of the situation being too easily eluded; the dream, however, clearly belongs to the same type and illustrates the flimsy nature of the explanations which satisfy us in dreams, provided they accord with the image actually present to consciousness. It would be interesting to know if this type of dream is as common as my observations suggest, and also to ascertain the nature of the dream-process regarding the dead among remote and uncivilized peoples.¹

It does not seem difficult to account for this dream-process and for its frequency. This dream-type is only a special variety of the commonest species of dream, in which two or more recent but totally unrelated reminiscences flow together and form a single bizarre congruity, a *confusion* in the strict sense of the word. The death of a friend sets up a barrier which cuts into two the stream of impressions concerning that friend. Thus two streams of images flow into sleeping consciousness, one representing the friend as alive, the other as dead. The first stream comes from older and richer sources; the second is more poignant, but also more recent and more easily exhausted. The two streams clash

¹In Japan stories of the returning of the dead are very common. Hearn gives one as told by a Japanese which closely resembles the type of dream I am discussing: "A lover resolves to commit suicide on the grave of his sweetheart. He found her tomb and knelt before it and prayed and wept, and whispered to her that which he was about to do. And suddenly he heard her voice cry to him 'Anata!' and felt her hand upon his hand; and he turned and saw her kneeling beside him, smiling and beautiful as he remembered her, only a little pale. Then his heart leaped so that he could not speak for the wonder and the doubt and the joy of that moment. But she said: 'Do not doubt; it is really I. I am not dead. It was all a mistake. I was buried because my parents thought me dead—buried too soon. Yet you see I am not dead, not a ghost. It is I; do not doubt it!'" It is perhaps worth mentioning that the incident told in the Fourth Gospel (Ch. xx., vv. 11-18) as occurring to Mary Magdalene when at the tomb of Jesus, recalls the dream-process of fusion of images. She turns and sees, as she thinks, the gardener, but in the course of conversation it flashes on her that he is Jesus, risen from the tomb.

in dream-consciousness, both, from the inevitable conditions of dream-life, being accepted as true, and they eventually mix to form an absurd harmony, in which the older and stronger images (in accordance with that recognized tendency for old psychic impressions generally to be most stable) predominate over those that are more recent. Thus my friend in Observation I. seems to have begun his dream by imagining that his mother was alive as of old; then his more recent experiences interfered with the assertion of her death. This resulted in a struggle between the old-established images representing her as alive and the later ones representing her as dead. The idea that she had come to life again was evidently a theory that had arisen in his brain to harmonize these two opposing currents. The theory was not accepted easily; all sorts of scientific objections arose to oppose it, but there could be no doubt, for his mother was there. The dreamer is in the same position as a paranoiac who constantly seems to hear threatening voices; henceforth he is absorbed in inventing a theory (electricity, hypnotism, or whatever it may be,) to account for his hallucinations, and his whole view of life is modified accordingly. The dreamer, in the cases I am here concerned with, sees an image of the dead person as alive, and is therefore compelled to invent a theory to account for this image; the theories that most easily suggest themselves are either that the dead person has never really died, or else that he has come back from the dead.

I think it worth while to record these phenomena, leaving others to prove or disprove their frequency. Such dreams seem to make a deep impression on the dreamer, even in an age in which no supernatural significance is attached to dreams.¹ If, as I venture to suggest, such dreams have an organic foundation, which causes them to occur with some degree of frequency, they must in more primitive times have constituted a significant factor in the evolution of culture.

¹I may, however, refer to the fact that in insanity dreams are still occasionally an important influence. For references to hallucinations begun in sleep and finally accepted, see Féré, 'The Pathology of Dreams,' *Brain*, vol. IX (1887), p. 488. A dream, it has lately been shown, played a prominent part in the development of Cowper's insanity.

EMOTION, DESIRE AND INTEREST: DESCRIPTIVE.

BY S. F. M'LENNAN.

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After all that has been written in regard to emotion it may seem superfluous for any one to take up the subject again. But inasmuch as one can still hear a rumbling in the distance and the different parties to the strife continue it in what one might call an exegesis of what they did mean in certain of their writings, it may be permitted to bring forward a few thoughts suggested partly by the controversy. The general descriptive outline to be attempted may not contain many things new—perhaps, as isolated statements, none. But it seems to the writer that these points may easily bear a good deal more looking into and may be carried into adjacent fields with the result that new light will be thrown upon the subject. Though cheerfully acknowledging the influence of all that has of late been written upon the matter in hand, it is but fair to state that the general conclusion in regard to emotion, although the same as that maintained by Professor Dewey, yet was worked out independently by the writer and in outline was formulated at the very beginning of the late strife. Of this, Professor Baldwin, to whom the outline was first communicated, can bear testimony. But leaving this aside, I hope that what is to be said may vindicate its own appearance as regards emotion and may throw some light upon the other topics.

The problem in hand is a description of the nature and inter-relation of emotion, desire and interest.

When one begins to ask himself what concrete emotional experiences mean a difficulty at once arises. Are we dealing with emotion, desire, or with a fact of interest? At first sight our way seems clear, but a closer inspection shows that our statement must shift about. An element of desire may be contained right in the centre of the concrete whole denomi-

nated emotion, *e. g.*, hate. At the same time it may equally well be termed, what it really is, a matter of interest. What, then, are we to make of it? Of course the old pigeon-hole theory has been put to rest, and we know that all mental states are interconnected and should expect that no one would be shut off from the others. But this free and easy way of settling the question will scarcely do, and we shall simply be passing over something which will help us clear up our ideas. Suppose, for instance, that we enquire into two facts, ever old, ever new, facts that have caused much laughter and much pain, but which, after all, show themselves to be fundamentally interesting. I refer to the well known examples of love and hatred. These have figured often enough in description and will serve for the present as well as any others. By this time the human race should be fairly familiar with these facts, and yet when we try to make clear to ourselves what they really mean we find it no easy matter. Is either an emotion, a desire, or is it interest?

They seem to be all three. All know how 'interesting' for those concerned these different feelings are. They lie at the very roots of the life and stir up the whole being. However, instead of being regarded primarily as facts of interest they are customarily referred to the realm of emotion. But the moment we look more closely this will not do. They are just as truly desires as any facts could well be. To make this clearer let us try and analyze the experiences somewhat.

Take love first. Before the fountains are opened up there must be some primary interest. Those who do not attract our attention in some way call out no feeling. But again, many who interest us in this primary manner open up no fountains of affection. Let the interest, as is often said, become deeper, and before the parties know they are in Cupid's toils; there is a general upset, and often they seem to an outsider to be beside themselves. The general turmoil of feelings has been so often dwelt upon in poetry and in prose that I need do no more than simply mention it. We see plenty Romeos and Juliets round us yet who confirm the statement, and if any are doubtful a little consideration of present or past experience will give them some light. This stage of the ex-

perience, while most interesting, is truly described as emotional. But this is not all. In his love the youth is not satisfied with being worked up, with having his brain in a whirl, with hearing the clap-clap of his unruly heart. As part of his love he desires to possess his idol. The absence of the fair one is misery to him; his whole self demands that he should obtain and love her for his own. Love would not be the tremendous engine that it is were it not for this. Even when the emotional element predominates the element of desire is seen really to enter into the experience. But as the inner conflict becomes harmonized and settles down into a definite outgo, the account shifts, the emotion as such ceases, and desire becomes the prominent thing.

We now pass to the third stage. When desire is realized, and the youth has attained his end, does the love then cease? When such cases come before us we feel at once that the genuine experience was not there; we feel that in the full experience that the possession but continues and strengthens the regard. Love, then, truly becomes itself, and, amid the storms and stress of life, shows that nature which fills us with wonder and reverence when we come in contact with a fair example of it. How deep and lasting is the love of a parent for a child, of a husband for the mate who has stood by him, and with him weathered the many storms in life's journey. Yet in neither of these cases do we find the strong upheaval of early days. Nor again is the present experience one of desire, for the object has long been obtained. It is neither of these forms, but it is still love, love which has 'set' itself in the very citadel of life. We are brought back to interest once more, but this time not a passing interest, rather the deepest thing in life. Interest here is seen to be at the beginning, to underlie, and to be at the end of both emotion and desire. Out of it they arise and to it they return.

We shall next turn to the negative view. Here we shall notice the same inter-relation. Hatred arises out of a negative interest. It takes some little nagging, some little fooling about, some thwarting of purpose and treading on toes before 'our feelings are aroused,' as we say. When our temper is up and we hate the person, as we look at the matter from the

one side there is the same upsetting of ourselves. Our feelings storm and toss; they seem to overpower us, as swell after swell rushes on. But here, just as truly as in the case of love, we find a desire to harm or repulse the one who has injured us, bedded in the very nature of hate. As our inner life becomes steadied, this comes quite prominently into view. The account moves over to the desire side, and the state becomes one almost entirely of wishing to get even with the offender. This truly is bad enough, but human nature has deeper depths still. The momentary desire to harm may settle down into a set line of opposition ingrained in our nature. Hatred has fully become itself, shown fully its inner nature. The rush and swirl are past and gone; there is no desire of getting even in any particular way, but a steady persistent outgo of opposition which knows no change. Such a hatred never lets up, and follows to the very grave. Here, too, we return to interest—a negative interest.

After this general description a closer analysis of these states will be of value. The relation of emotion and desire may first come up.

As we can easily see, both are organic wholes in which several aspects may be detected. Again they are dynamic things. No very great acquaintance with the nature of either is necessary to see this. The organic unity of emotions, especially as containing several aspects, has often been overlooked. In psychologies the feeling element has been made prominent. One is led to believe that it is the whole thing, and besides is simply an accompaniment of the thought process. Out of this it seems to me a great deal of the present confusion has arisen. Now let us take the concrete facts, and staying closely by them, see what they mean. Take which emotion or desire you will, and it is evident at once that it is not made up of parts set off from one another. These parts are aspects of one living whole. Further emotions and desires belong to the reactive consciousness. As distinguished from volition, they represent an involuntary reaction of our nature; as distinguished from impulse—a certain solidity or definiteness of outgo. Within this agreement as to unity, dynamic force and reflex nature we shall later on

call attention to an essential distinction between the two states. Here we note that our nature rises up without being bidden, and, more than this, it usually directs whatever bidding there may be. Whenever the stimulus is present these phenomena immediately show themselves as driving, pressing, impelling and moving. Often we strive voluntarily to hold them in check, and find trouble.

Turning to an analysis of the different aspects by each state, emotion comes first to hand.

In the nature of emotion there is inner strife and yet unity. Our nature as a whole arises in answer to some stimulus, but the answer is a conflicting one. There is a lack of equilibrium, our nature sways to and fro, seems rent asunder, but all the time seeks to come to harmony. Instinctive tendencies pull together and apart. The character of the emotion is determined by the general nature of the strife. Anger is most keenly felt when our tendency to thrash the other person is held in check by the suggestion that we are not quite equal to the task, and had better not start in. When we are badly frightened the tendency to run, and even the running itself, is inhibited by weak knee reaction, due to the thought of danger. Every time the thought of this comes with a pulse upon us we seem stopped up. Emotion would thus show itself to be an instinctive 'preparing' for action—in which there is lack of harmony or coördination. As regards the moments of emotion, we have (1) a content. That every emotion has an intellectual element is quite easily seen by examining any of the concrete states known by this name. We see it in hate, anger, joy, dread, and all the rest, readily distinguishing them from one another. We may say, indeed, that the emotion terminates upon some external aspect, and may think that it is simply an accompaniment. This may be all very true, but it is just as true that in the emotion, as part of it, there is a content or object—this very situation as it is for us as interpreted. In hatred as an experience there is the idea of ourselves injured, and of the offender as reckoned with. Take all the emotions in succession and the same thing is found.

The question here becomes interesting as to how this content arises. Is the object (our interpretation) there immediately or is it built up? Consciousness soon makes this clear. The object is built up dynamically by our reaction; we receive a stimulation, a suggestion; and our progressive interpretation, our grasping of the meaning makes the situation what it is to us, as expressed in intellectual terms. Not until the interpretation is complete, till we see what the thing means is the emotion what it is for us. The emotion, as a whole, and in its aspect of content varies just as the interpretation. An act may arouse very angry feelings at the time, but seen in another light may cause joy. The joy and anger are what they are, as our way of looking at the matter is, as we perceive that the situation will or will not fit in with our life and is for our weal or woe.

(2) An Attitude. The content represented our intellectual valuing of the stimulus. Every stage of this valuing has another side which plays its part, and at every turn hands in its result for the construction of the situation for us. As we look closely at any emotional state we see that immediately, instinctively, we take up an attitude toward or against the stimulus as we make it out to be. At the suggestion of harm we are up in arms at once. When some one tramps on our toes we feel like hitting him, *i. e.*, we have an attitude toward him. The moment, however, that we notice that it was accidental, and apology is made, our attitude sweeps round and we say that it is all right. This shows that the attitude, too, is a relative thing, varying according to the suggestion. As we study our own states it is quite wonderful to notice how our attitudes sweep about. A word, a little incident, may be sufficient to give the whole experience a different coloring. As to the character of the attitude, it is determined by the nature of the person. This shows at once. Take for example the case of grief. One person is literally crushed, and cannot stand the strain, another may explode in angry denunciation; a third, while 'cut to the quick,' as we say, takes up his burden and plods along his weary way. In fact, here all manner of natures are shown. There are those whose emotions seem like

the foam on the sea: they are all a-bubbling and a-gushing, but there is no stability, and we turn away weary. We feel that there is weakness, a lack of determination, strength, force of character. Other natures may be slow to arouse, but are firm and steady. When the emotions of such are aroused we are conscious that there is some meaning to them. If they are opposed to us we at once begin to gird ourselves for the fray. We respect if we do not love. This strength and solidity of the emotion often goes together with a keenness and fineness of reaction—complexity and stability build themselves together. Now this instinctive reaction, of whatever character it may be, dynamically and progressively builds up as the interpretation of the situation goes on. It, too, reacts upon the suggestion and modifies it. The valuation becomes what it is as much from our attitude as from anything else. It becomes what we instinctively feel we can make of it. To one person the situation is one to be avoided; to another to be entered into as he finds he cannot or can make something of it.

Here, also, we find two great lines of cleavage—one an innate tendency to absorb the new situation, to make it part of our life; the other to avoid it, throw it off, or keep it from us altogether. These two attitudes show themselves as attraction and repulsion. In our love we naturally 'go' to persons; in our hatred we seek to keep them away or to get rid of them altogether. Whatever seems good to us and fits in with our own life we go toward; from whatever seems evil or will harm us we turn away.

(3) Beside the intellectual and attitude aspects there is something else to be considered, viz., the swell or drive of feeling. This we are all clearly conscious of. It seems as if our whole nature were boiling up, or as if a cold, frigid hand had laid its icy grip upon us. This swell or drive of feeling influences us in two distinct lines, as the others do, and contributes its share in a very material way to the experience in whole and in part. It seems a direct and immediate organic answer to the stimulus as it is being interpreted. When we think that some injury has been done us, and we resent it, our very blood appears to boil up within us, and

the more we think of it the worse it becomes. Every new feature stirs us up more, and our feelings are like oil added to the fire. Our whole nature flames up and becomes colored with the burning. Our attitude becomes more definite and the intellectual valuation more clearly set forth. As wave after wave of tumultuous feeling comes rolling in upon us our hands clench harder and our injury seems greater. The emotion as a whole is filled in.

This carries us to (4) the color tone. We have noted that emotion was a state in which we were in unstable equilibrium, various tendencies were at war with one another, and gave the qualitative determination to the state. In all the three aspects which we found within this dynamic whole two great lines of cleavage show up. In the intellectual side there was the suggestion of weal or woe; as to attitude, an impulse toward or away from, for or against; on the side of feeling, elevation or depression, expansion or contraction of life. When we turn to the pleasure and pain coloring the same appears. Pleasure attaches to those states in which we find an idea of good, an attitude toward, a feeling of expansion, while pain attaches to the opposite. These various states fluctuate a great deal, and emotions may rapidly alternate or mix up. But if we watch closely we can easily see that as the 'cue' of the emotion is so is the tone.

Enough has been said to place before us the nature of emotion. The next thing to call attention to is its transformation. When emotion has been aroused in any individual we always notice that attention is called out. We endeavor to harmonize the conflicting elements, so that in unrestrained action they may pour forth. A deliberative state of affairs is at once brought on. When this is ended, and harmony has come, when we know what we are going to do, the state passes over into volition. Now, if the action is one which we may immediately carry out, the subjective determination is made objective by gripping on, by our fulfilling the conditions upon which our past experience has shown that the expression depends, or in searching for new combinations whereby expression may be brought about. But if we cannot immediately put our determination into effect the volition becomes

a harmonized way in which we are prepared to react on stimulation. As such it passes over into desire. Emotions then tend to pass into harmonized immediate action or volition, and into desire as instinctive 'preparedness' for action. We must note, however, that this preparedness does not 'set' immediately, and any new suggestion may bring about the old turmoil. Perhaps, after the strain of some severe conflict, in which our inner life seems torn to pieces, we arrive at some conclusion. We seem to be settled down, and suppose that our nature will at once answer in a steady outgo. How often we are deceived. A new point of view will start up the whole turmoil again. Until desire is 'set' it may pass back into emotion, and we find a continual vibration between the two.

It is now time for us to pass from the consideration of emotion to that of desire. Many things which have been said above have already given the outlines of what must now be set forth in fuller form.

Desire, like emotion, is a dynamic whole. Our nature in strong, definite lines goes surging and charging forth. Here, too, we have a good example of reflex activity. Upon the presence of a stimulus there is an immediate outgo of ourselves—a pressing, driving outward, often in such tumultuous fashion, indeed, that it seems impossible to hold the reins over the steeds in their wild career. In emotion we found inhibition. Here, too, it is found, but not in the same place. In emotion there was inhibition within the state itself. There was simply a preparing for action. In desire there is no lack of harmony within the experience. Our nature pours forth in harmonized, though often tumultuous swell. The inhibition is to the reaction seeking to express itself. We instinctively know what we want to do—our nature pours out to this, but there is some stoppage, some hindrance, and we feel pent up, our reaction cannot discharge itself. The stronger the inhibition the stronger our desire waxes, swelling and pressing forward until a limit of impossibility is reached and the whole is violently crushed. To take a simple case. When we are far from home, and the thought of those there is borne in with force upon us, our nature reacts and we

go forth to them. But something stops us. At such moments our longing grows stronger, and we can scarcely contain ourselves. These facts show us the essential distinction and relation of desire and emotion. In the latter the inhibition is markedly within, there is simply a preparing for definite reaction; in the former the preparing has passed into preparedness, but to the preparedness there is some outer inhibition which prevents discharge.

Following along the lines marked out in emotion, we shall pass on to an analysis of desire.

(1) In desire, as in emotion, there is a content object. In this case, as in the other, the content is dynamically built up by our reaction upon some stimulus, and represents our intellectual valuation or interpretation of the situation. This situation, as interpreted by us, is what we want, and our interpretation viewed from the intellectual side is the object as it is for us. Here, too, the old law of relativity reigns. What is desirable to one person is not desirable to another. There are great variations. In fact, here, as in emotion, we see the expression of the inner character or nature of each individual. To one material things alone have value and are desirable; to another the great centre of life may be in the realm of art. In presence of these the soul rises up in all its power and seems striving to burst the limits imposed upon it. Here, also, we find two great lines of cleavage. Those things which appear to fit into the life of the individual, as expanding or enlarging, become goods to be sought. On the other hand, things which have a sinister import, which would cause contraction or suppression of our life, in whole or in part, become aspects of aversion—we loathe them.

(2) Looking inward again, we find an attitude as in emotion. But as we have seen, it is an attitude harmonious in itself, so that the various elements fall together in one outgoing stream. Reflexly we pour out toward or against the situation. Those things which have become objects of desire we are immediately impelled toward. In aversion we cannot help but be conscious of repelling the object—it has become one to be got out of the way, and at once we seek to relieve ourselves of

its presence. Here again the two great lines of discharge are seen and it is also to be noted that, as in emotion, our immediate attitude toward an object goes to make it what it is for us. Without using more detail we shall pass to the third element.

(3) We shall term this, as the same aspect in emotion has been termed, the 'feel.' In desire, as notably as in emotion, our inner springs are opened up and pour forth in tumultuous fashion. The more the reaction is hindered and we are shut off from some object dear to us, or something hateful is forced upon us, the more our nature surges and boils until it sometimes seems as if all barriers would be burst and we could contain ourselves no longer. Also, as this storm of feeling boils up and rolls in upon us, the intellectual valuation is enhanced, the more powerful becomes the strain upon our reaction. The desire as a whole is increased and rapidly passes on to its climax.

We now turn to (4) the color-tone of desire. As connected with the striving or straining this is always painful, but as regards the suggestion of satisfaction in the object and the impulse thereto it is pleasurable. Pleasure attaches to the prospective side and pain to the present. On the prospective side pleasure attaches to that which fits in with the life, sustaining and expanding it, and also to the suggested state of freed life when the contracting or damaging object of aversion is removed. Summing up these, we may say here as elsewhere that pleasure as color-tone indicates that which ideally or organically makes or appears to make for the expansion of life, while pain attaches to that which appears to contract or destroy our life in any department.

In emotion it was noted that the upheaval called forth active attention. So here we find that the craving of desire or the impulsion of aversion calls out our attention strongly, so that slowly or rapidly we seek to know what to do. This state is often one quite perturbed but nevertheless in its nature it is one of deliberation. When our minds are made up and we determine to act, the desire passes over into volition in which for the time being our keenest interest is centred. As our whole self, reflex and active, is engaged or

absorbed in the gaining of our end, the state is pre-eminently one of interest. True, in so far as one cannot attain one's end at once, desire remains and crops out in full force whenever our attention reverts to it particularly; but in so far as we are bound up in our action, interest is at its maximum. Where this is so, even when our action is directed to the overcoming of some hateful thing, we find the keenest pleasure. When our action is paralyzed and nothing can be done the color-tone becomes painful in the extreme. Free unimpeded action is interesting and pleasurable—impeded action or lack of it is painful and disinteresting.

Something farther is to be said. If our action is directed simply to one end it soon becomes monotonous. On the other hand the more we exercise in regard to anything the more interesting it becomes. Some line of action which perhaps was not very interesting at first but which has become set in our lives, connected and bound up with all that makes life worthful to us, shows itself to be a matter of deepest interest. The momentary interests pass over into the deep life interests, and, as such, constitute those things upon which we habitually react.

In gathering up what has been said we notice that those things which in any way come within the realm of our well-being, become matters of interest to us positively or negatively. Momentary interests, if continually reacted upon, pass gradually out of the immediate focus of the attention and become set in our nature. As they become set they become most interesting. When some new element of experience appears and it cannot be immediately assimilated but sets up different modes of reaction not yet harmonized within themselves, we have emotion. When the reaction immediately arises and is harmonized within itself but is inhibited in discharging, we have desire. These when attended to pass over into the immediate interest of action and although for a time vibrating from one to another, emotion tends to pass over into desire, which is interest inhibited. When inhibition is removed and the set reaction pours forth and calls out the active attention we have deepest interest.

Fundamental to all as the beginning and end we have interest immediate, or life. Also the two great courses of cleavage are seen to lie along the lines which make for the contraction or expansion of life. Wherever there is contraction of life the color-tone is pain; where expansion, pleasure.

REACTION TIME WITH REFERENCE TO RACE.

BY R. MEADE BACHE.

The fact of the coördinated existence to common observation of the apparently completed, final man, obscures in the minds of the multitude the rationale of his muscular movements. It is generally believed that in health, every one of those movements, whether in waking or sleeping, is derived from an act of either self-conscious or semi-self-conscious will. But physiology proves that some movements are simply reflex, as when, for instance, the hand may be said to draw itself away from a burn, and that others, although secondarily reflex, are still purely automatic, as when a child, having learned to walk, can walk thereafter without other self-consciousness than that necessary to start the machinery of walking; and of course every one knows that the vital movements, such as the beating of the heart and the processes of digestion, go on entirely irrespective of self-consciousness and will. Deep down in the physical constitution of man, graduated to his present condition through successively higher and higher types, with corresponding advance in structure and function, lies plain evidence of the derivation of certain contradistinguished movements, namely, automatic as contrasted with volitional movements. As the skull itself was, as discovered by Goethe, derived from upper vertebræ, it needs no demonstration to prove that, in the preceding period, there was no brain; and as all animals now provided with crania must then, nevertheless, have lived and moved and had their being, it also stands to reason that will, which has its organic seat in the brain, could have had no existence in that preceding period.

What, then, in one era of that primordial time, representing millions upon millions of years ago, constituted animal life? — What indeed in some of the present forms of life, as

in the case of the simplest, the *amœba*, entitles them, as little protoplasmic masses, to be regarded as possessing animal life? Assimilation of food in a way analogous to digestion, and with a difference from vegetable life,—through a law almost universal even in the misty borderland between the lowest forms of animal and vegetable life,—the imbibition of nutriment in higher chemical combination than vegetable life can use it. So, also, in some of the past history of incipient man, he, too, was a creature destitute of capacity for the designed taking of food and direction of energy, destitute of any capacity for movement except that which was purely reflex, not purposive. It follows, as proved by biology, anatomy, and physiology, working hand in hand, that man having been evolved from successive forms which, at the beginning and long afterwards, were reflex in their movements, must continue, in harmony with his present environment, to be so endowed. Development depends upon natural selection and functional use, and these are in turn dependent upon environment, and man's environment has not so changed as to enable him to dispense with reflex, and secondary-reflex, combined in automatic movements.

The foundation of man's earthly existence is and was what Huxley terms 'the physical basis of life,' protoplasm; and now, in the highest estate which he has reached, metabolism of that basis, the chemical building up to higher forms and the breaking down to lower forms of protoplasm, represents the varying intensity with which he lives. So varied in its conditions and consequent manifestations is this physical basis of life that Dr. Michael Foster writes in the article 'Physiology,' in the *Encyclopædia Britannica*, "the protoplasm of one muscle must differ from that of another muscle in the same kind of animal, and the protoplasm of Smith's biceps must differ from that of Jones's." Biologists and physiologists do not deny to protoplasm, even in its simplest forms, the quality of consciousness. If they did, it would be impossible to draw the line where consciousness begins in one form of life and where it ends in another. In a certain broad, intelligible sense, it may be said generally, that where we see life of even the lowest form assimilating

food of a certain chemical constitution, there is animal existence and consciousness. There are exceptions in plant life, but they are few. But the consciousness referred to is not the kind that is covered by the term 'self-consciousness,' or by another term that is used to mark the distinction—'awareness.' By way of illustration of the difference, it may be said that the eye may be open and a picture of surrounding objects necessarily on the retina, but yet the mind may take no cognizance of the picture: the picture must be seen, but it may not be perceived. So also, in the lower protoplasmic life, there is consciousness for the requirements of mere being, but not 'awareness' of being and of its manifestations.

As, at the remote period indicated, in which millions upon millions of years are involved, man having no skull, and therefore no capacity of 'awareness,' his functions were then only reflex. Graduated beyond that point, he yet, in correspondence with his acquired vertebrate formation, became possessed of nervous structure serving the needs of his advancing form of life. If the being from which he was derived had no skull, it had neither cerebrum, cerebellum, pons, nor medulla oblongata, all of which are contained within the skull. He must at one time have had only a spinal cord, the present structure of which makes it a nerve centre as well as a conductor of nervous impressions. Therefore, in the being which was to become man, the spinal cord, which now represents the nervous agency of voluntary movements and tactile impressions must, as it was not dominated by will through the presence of brain, have been the seat of mere vital impressions and reflex action unaccompanied by perception. An animal, the amphioxus, the lowest of the vertebrates, still extant, has no head, but merely a vertebral column. The condition of man differs essentially now from that of his past. In addition to the spinal cord's being now more highly differentiated, it may also now be dominated by the will, through the organ of the brain, and it generally is, even in a measure during the incoördination of the nervous system during sleep, for the sense of existence and of personal identity is never lost even in dreams.

Endowed as man now additionally is, he consists of two physical beings, one of which, automatic, may or may not at times be dominated by the other, the intellectual, gifted with perception, intention, and will. He is, moreover, so organized now, and must so remain as long as the requirements of his present environment endure, as to bring it about that the dominant brain can give general, instead of particular, instructions to its automatic slave, which the latter will faithfully carry out to the extent of its physical ability. The automatic man is the educated slave of the brain, as proved by the fact that the art of walking, as well as all other complex actions, had to be acquired through the expenditure of a certain amount of instruction, attention, effort, and time. Walking is a complex muscular performance in which the man wills that his body shall walk, and leaves to his automatic part the execution of the task. Having been once acquired, the ability has become and remains purely automatic, and whatever may be said of walking applies with equal force to any other complex muscular movement of man. One should not suppose that when an athlete is striking the punching bag of a gymnasium with the utmost rapidity of which he is by training capable, that each blow emanates from a special act of will. If that were so, each blow would show the 'reaction time' of the man; that is, the interval between perception and action. But this is obviously not so, for the number of blows, dividing the time in which they are struck, proves that intermediate perception between every two is eliminated. When, for instance, Corbett, the boxer, stands in profile and strikes the bag as rapidly as possible, the play of his forearms resolves itself into a blur, in which their outlines are scarcely visible. In striking the punching bag, perception for each action represented by a blow is discarded. The will determines that the blows shall be delivered, that they shall be delivered with a certain rapidity, and it continues throughout the operation to supervise their delivery, but it cannot supervise each, any more than it can determine their speed, which necessarily depends upon the automatic excellence of the instrument with which it is dealing. The will, which means simply the mind

resolved into action, has, in the case under consideration, nothing to do with the matter but to start, to preside over the action, to modify, and to stop it.

The preceding statements of fact bring us face to face with an important conclusion to be drawn which entirely differs from popular conception of the subject. Herbert Spencer somewhere calls attention to the contrast between the savage and the civilized man, in the circumstance that the former is so much more than the latter a creature of secondary reflex movements, and he illustrates this by remarking that, if a savage hurts his foot against a stone, the likeliest immediate response on his part is to kick the stone; an action indicating a development far inferior to that of a civilized, not to say an intellectual man. Now, the popular notion is, that the higher the intelligence of a man, the more immediately responsive his movements must be to stimulus. But we have already seen reason to believe that, all educated movements being automatic, it is the lower, and not the higher man, who should be more responsive to stimuli of the sort which are related to secondary reflex action, that men, in proportion to their intellectuality, should tend less and less to quickness of response in the automatic sphere, that the reflective man should be the slower being. That this is so I have for a long while believed, and I find to my mind a sufficient reason for its so being in the fact that the automatic preceded the intellectual condition of man, and that, with the decline of his primal rude life, secondary reflex movements should have become in lesser and lesser degree a necessity for his self-preservation. He should have discarded, I thought, in proportion to his intellectual advance, whatever was becoming less and less useful to him in his changed environment. In all evolution is modified or discarded whatever there is of lessening or no requirement for life under new conditions.

The popular notion that the more highly organized a human being is, the quicker ought to be the response to stimuli, is true only of the sphere of higher thought, not at all of that of auditory, visual, or tactile impressions, which invite secondary reflex action. As here stated, response to

such stimuli, not depending upon the more highly organized, but upon the less highly organized portion of the nervous system, the most ordinary intelligence should suffice for its exercise; and in proportion to intellectual advancement, there should be, through the law of compensation, a waning in the efficiency of the automatism of the individual. It has been contended, as an unanswerable argument, by a crucial test, that other things being apparently equal, high intelligence in one man as compared with another would result in the favorable issue to him of a pugilistic contest in which he might be engaged with that other. But here is introduced an element which is not necessarily involved in consideration of the 'reaction time' of two of the kind of men usually engaged in such contests. The answer, therefore, is that, other things being equal, relatively greater intelligence should give its possessor the victory, but only on the condition that the intelligence is superior, but not high, for it does not require high intelligence to conduct a pugilistic contest; while, on the other hand, inasmuch as the intelligence requisite for the conduct of a pugilistic contest is at best low, if one of the combatants, otherwise apparently equal, be an intellectual man, that is, has intelligence far beyond the purpose, and the other has nothing but intelligence sufficient, the former would be handicapped by his lesser relative automatic excellence, lost perforce of his intellectuality. His intellectuality having been gained at the expense of his automatic capacity, he would be defeated by the man whose lower, but sufficient, intelligence had subtracted less from his primitive constitution. The law of compensation is binding, and declares that growth in one direction of correlated structure and function involves diminution in another, and here we have a case of distinctly correlated structure and function. In a word, the automatic superiority of the less intellectual man being greater as such than that of the other, and his intelligence quite equal to the purpose of pugilism, he would win in a pugilistic contest. If it were otherwise, then the theory here brought forward, as supported by observation, and by experiment remaining to be finally presented, would fall to the ground.

Pride of race obscures the view of the white with reference to the relative automatic quickness of the negro. That the negro is, in the truest sense, a race inferior to that of the white can be proved by many facts, and among these by the quickness of his automatic movements as compared with those of the white. Many men, however, resent any claim for him of superiority, even in the low sphere of automatic movements, notwithstanding that there are several negroes and mulattoes at the present day in the ring whose excellence is scarcely approached, some of whom have often cheerfully encountered opponents of much greater size and weight for the privilege of being able to prove their skill. When additionally it is considered that the negro has in pugilism the advantage over the white in length of arm and thickness of skull, it ought easily to be seen that, with equal opportunity, were prejudice not so strongly against him, he would be regarded as the boxer *par excellence* of the world. It would be vain to say that Corbett is as quick as, or quicker than, any negro boxer. He may be quicker than any present negro boxer, but even that is doubtful. It is, however, contrary to all scientific practice to generalize from the case of a single or even of a few individuals by way of establishing a law. It is relative race characteristics of which there is now question, as previously there has been question of the relation between different individuals of the same race. Any one who will dispassionately observe any group of skylarking whites, and compare them with a group of negroes under the same circumstances, would be forced to admit that the latter are quicker in their movements; that the negro is, in brief, more of an automaton than the white man is. When bluff John L. Sullivan declared of the colored boxer, Jackson, that he would not fight him because of his race, he probably builded better than he knew when using the word superiority in the sense not related at all to a pugilistic contest.

Having, from observation, for a long while believed the fact to be as here stated, with reference to the relative automatic excellence of individuals of lower races as compared with those of higher ones, and having additionally ascribed

the fact, if it be a fact, to the cause mentioned, I finally determined to submit the matter to the test of experiment. With magneto-electric apparatus, now so common and easily adapted to various investigations of the sort, Professor Lightner Witmer, of the University of Pennsylvania, has at my suggestion made a number of experiments for determining the reaction time of Whites, Indians, and Africans, with the results as given below. The reaction time of women, as settled by the same indisputable method, was long since determined as less than that of men, and this result, it will be observed, is in strict accordance with the fact that the brain development of men, as compared with that of women, is greater, even when taking into account the relatively greater weight of normal individuals of the male sex as compared with that of normal individuals of the opposite one.

Although I do not, in contradiction of my own statement, mean to imply from the few experiments here presented, that they should be regarded as conclusive of the views here expressed, yet I present them for what they are numerically worth, with the intention to increase their number, and in the hope that, from the fact of their presentation, other persons will be led to follow the same line of investigation.

CAUCASIAN RACE.

Different Persons.	Age.	Auditory.		Visual.		Electric Shock.	
		Mean of 10 Observations.	Mean Variation.	Mean of 10 Observations.	Mean Variation.	Mean of 10 Observations.	Mean Variation.
1	22	135	7.0	152	10.0	141	4.0
2	24	130	7.0	140	8.0	128	11.0
3	16	141	13.0	174	10.0	137	9.0
4	14	132	8.0	159	10.0	138	3.0
5	15	182	20.0	214	6.0	142	14.0
6	19	147	19.0	164	11.0	119	13.0
7	18	139	12.0	155	22.0	95	11.0
8	19	170	15.0	191	12.0	150	27.0
9	20	123	6.0	164	9.0	121	7.0
10	15	234	17.0	201	12.0	229	15.0*
11	24	119	7.8	118	3.0	103	6.7
12	15	111	12.1	145	3.9	133	6.8
Final Means, 19		146.92	12.0	164.75	9.7	136.33	10.6

* In all the tables the figures represent thousandths sec. Compare times in this line by all three tests. They are abnormally slow.

INDIAN RACE.

Different Persons.	Age.	Auditory.		Visual.		Electric Shock.	
		Mean of 10 Observations.	Mean Variation.	Mean of 10 Observations.	Mean Variation.	Mean of 10 Observations.	Mean Variation.
1	18	165	5.7	168	8.5	152	3.5
2	21	115	5.5	121	3.9	100	3.4
3	14	128	5.4	148	6.2	118	2.5
4	23	144	6.1	127	3.1	122	3.6
5	14	70	6.2	119	4.8	94	5.3*
6	16	104	11.0	139	9.9	121	5.4
7	16	109	10.1	151	6.3	123	2.4
8	17	107	10.6	120	6.2	90	3.9
9	17	120	13.0	141	6.9	120	8.2
10	18	117	12.4	141	7.7	110	5.8
11	19	100	5.3	118	3.7	114	4.6
Final Means,	17½	116.27	7.7	135.73	6.1	114.55	4.4

*Pure blood Indian. Abnormally quick.

AFRICAN RACE.

Different Persons.	Age.	Auditory.		Visual.		Electric Shock.	
		Mean of 10 Observations.	Mean Variation.	Mean of 10 Observations.	Mean Variation.	Mean of 10 Observations.	Mean Variation.
1	16	114	7.2	157	8.4	107	10.3
2	19	113	10.4	148	14.2	108	5.4
3	19	127	7.7	131	4.6	100	3.6
4	20	125	5.7	138	6.9	120	6.0
5	19	164	24.7	173	7.0	137	13.9
6	22	164	13.4	187	10.7	178	8.7
7	26	121	13.8	118	11.8	103	5.0
8	34	148	4.0	159	5.9	141	7.7
9	38	109	4.8	165	11.2	118	6.5
10	16	120	6.0	162	8.0	112	5.0
11	25	126	5.0	144	7.0	128	8.0
Final Means,	23	130.00	9.3	152.91	8.7	122.91	7.3

The first thing that strikes one, upon examination of the tables, is the relative slowness of the Whites, as compared with the Indians and Africans. This is in accordance with the theory. But what is not in accordance with it, is that the reaction time of the Indians is shown by the tables to be less than that of the Africans, and the African is not so high in race as is the American Indian. It is possible, however, that the eventual explanation of this, when enough observations shall have been secured to demonstrate a law, will be that the Indian belongs to a race which for centuries cultivated quickness of movement as a necessity of his existence. Besides, the so-called Africans on the list have a larger intermixture of white blood in their veins than have the Indians on the corresponding list. It would seem, however, that the largest factor, as a disturbing element, is derived from the circumstance that the African, of the class here referred to, of whatever infusion of white blood in his veins, inherits physiological effects from generations of slavery. It must be, if we can ascribe to the Indian, through the influence of heredity, an extraordinary low reaction time, that we should admit, through heredity, the effect of converse conditions to which the African has been subjected. Whoever has seen slaves hoeing, in their listless fashion, in a cotton-field, or engaged in other forms of labor, must feel well assured that the mental attitude thereby betrayed could not fail in the course of generations to modify physical function. In sum, the conclusion must be, so far as the tables may elucidate the subject, that the African is quicker than the White, despite his hereditary history, and the Indian is quicker than both, perforce of his hereditary history.

I wish to call attention to a strange detail, to the case of No. 5, on the list of Indians. That case happened to be one of a full-blooded Indian, and as is seen, his reaction time is marvellously low. If 70 had appeared alone as the result of the auditory test, it would be justifiable to discard the observation, but the auditory, visual, and tactile tests all correspond, in due relation to each other, and therefore it is impossible to regard this as any other than an exceptional case of quickness even amongst Indians. It is interesting to

contrast with this the case of No. 10, amongst the Whites, with reaction time about three times slower than the reaction time of the Indian No. 5. Here again we perceive, as in the case of Indian No. 5, that the times, as determined by the auditory, visual, and tactile tests correspond perfectly, and that we must regard this as a case of abnormal slowness of reaction time even among Whites.

In the list of Whites there are twelve individuals, and in the list of Indians, eleven, but only ten in the list of Africans. But, then, it must be considered, that in each of the first two lists mentioned is included an abnormal case,—one of slowness and one of quickness. It would take more than one or two additional cases to produce an entirely satisfactory mean. To obtain perfectly satisfactory final means it will be necessary, of course, to make many more observations, and these I hope eventually to secure.

The views which I have here expressed I had entertained, from observation, for very many years, long before I suspected the scientific bearing which they have. I never found any one, however, to whom I communicated them who seemed to recognize their probable truth, and it was at the beginning, and for a long period afterwards, impossible to prove the correctness of my position until the creation of electrical physiological apparatus enabled any one to put to a crucial test any such theory as is here presented. When at last the apparatus was invented, and the convenience came to me in the facility afforded by Dr. Witmer, I availed myself of the opportunity. The article which I here present was written several months ago, while the experiments at the University were proceeding. I had intended to publish it at once, and let the experiments follow, but upon reflection, I concluded to postpone its publication until it was in my power to give something that would at least point in the direction of the truth of my hypothesis, for otherwise, it might be received with entire incredulity. Now that I am able to present matter, which certainly does point, if it does no more than point, in the direction indicated, I do not hesitate any longer to publish what I have held back.

It only remains to add, for the benefit of the general reader, that the record, as represented in the tables, is made in thousandths of a second, as registered by the electromagnetic physiological apparatus. In the auditory test, the subject, upon hearing the prescribed short sound, releases a telegraphic key upon which his finger is resting. The difference of time between the sound as it takes place and the release of the key is recorded by the apparatus. In the visual test, a long pendulum is suspended away from the perpendicular in a room adjoining that in which the subject sits. The subject releases the telegraphic key at the moment when he sees a flash of light given by the pendulum-bob passing a small opening in the room where he is placed. The difference of time between the actual passage of the bob and the time when the telegraphic key is released is recorded by the apparatus. In the tactile test, a slight electric shock is given to the wrist of the subject. The difference of time between the shock and the removal of the hand from the telegraphic key is recorded by the apparatus.

DISCUSSION.

PAIN NERVES.

In the July number of this REVIEW appeared an article entitled 'The Psychology of Pain,' by Professor Strong, the same having been read by him at the late meeting of the American Psychological Association at Princeton. The paper presents two main conclusions, with one of which I am in such hearty accord that I may the more freely express a small doubt about the other. This other is, in Professor Strong's words, "that the evidence seems on the whole to indicate that pain impulses are exaggerations of tactile, heat and cold impulses, and are conducted inward by the same fibres."

Presuming that Professor Strong presents in his paper the strongest evidence he knows of for his opinion, it would appear that he rests it chiefly on the cases of locomotor ataxia mentioned by him on pp. 336 and 337. The point he there brings out is, the presence of hyperalgesia to temperature within the same areas which are analgesic to touch.

Professor Strong deduces from this that "temperature pains are more closely bound up with normal sensations of temperature than would be the case if pain impulses were conducted by a special set of fibres." It is against the legitimacy of this deduction that I beg leave to raise a question.

These cases of locomotor ataxia, as do others, certainly show the seat of the disease to be puzzlingly specific. Apparently, in the same section of the cord, the touch fibres are left intact, while the temperature fibres from the same cutaneous area are affected. The reverse also frequently happens. Or again, in some cases, even touch and cold are left, with the loss alone of heat. But since, beyond doubt, the disease is thus mysteriously specific, why does Professor Strong refuse to conceive that it may likewise extend to the affection of specific nerves of pain? Granted that ataxia sometimes affects all the cutaneous impulses simultaneously, should one therefore conclude that all of them are carried in one fibre? Or with just heat and cold affected, does that necessitate their impulses running in the same fibre? If not why are we to conclude,

on precisely similar evidence alone, that heat and heat-pains must be carried in the same fibres? It would seem to me that only those cases would be in evidence for or against the separateness of pain and other fibres, which showed pain surviving with loss of corresponding other sensations. And since Professor Strong, from the reports he quotes from Dr. Mitchell and others, appears to be abundantly aware of this not uncommon occurrence, one is a little perplexed at his summary rejection of separate pain nerves.

Going further, we find plausible reasons why touch, cold and heat fibres should respectively be bound up each with its own separate pain fibres—granting that these exist. The matter of end-organs suggests this. Though we know little about them, it is fair to suppose that the same outer impulses demand similar end-organs for the correspondent pain nerves, as for the nerves of the ordinary sense; and that different end-organs are demanded for different sorts of pain stimuli. Under this view we should expect the heat and the heat-pain fibres to have similar, if not indeed identical end-organs. And if so we should not be surprised to find these fibres more closely bound together in the cord than are those of touch and heat, which, probably, have very different end-organs seated in different dermal layers.

In view of the overwhelming evidence, both normal and pathologic, of pain from all sorts of stimuli, unaccompanied by other sensations—from temperature as well as from other—we might leave here the theory of separate pain-nerves to stand on its own merit, did not one other point in Professor Strong's unique exposition of his subject call for comment. While rejecting the old 'quale theory,' he still clings to the notion that "pain impulses are exaggerated tactile, heat and cold impulses, and are carried inward by the same fibres." Of course he does not now mean, as did the old traditional pain-pleasure theorists, that heat, for example, has one ordinary form of impulse, and heat-pain another exaggerated form all to itself. For since, unmistakably, we experience heat and heat-pains simultaneously, such a notion would leave us conjecturing how two forms of impulse, a weak and a strong one, should be induced by the same stimulus and carried in the same fibres at one and the same instant. What Professor Strong undoubtedly means is that the exaggerated impulses are as much tactile, heat and cold impulses as they are pain impulses; and that when we do experience pain both it and its accompanying sensation rises from the same impulse, only that we do not have pain unless this impulse is of the exaggerated form. To explain, under such a conception, how the two sorts of

sensation should result from precisely the same exaggerated impulse, yet be two separate sensations, Professor Strong avowedly falls back upon Wundt's 'shunt' theory,—which is plainly the only one in the field at all reconcilable with his peculiar views. But since Professor Strong himself suggests certain objections against Wundt's theory, and mentions no objections whatever against the theory of separate pain-nerves except, as may be inferred, that they have never been visibly demonstrated, we are at some loss to understand his unqualified acceptance of the former in face of many obstacles, and his as unqualified rejection of the latter in face of no obstacles.

The objections to Wundt's theory may be summarized as follows: First, the numerous cases, normal and pathologic, of pain without accompanying sensations of touch, heat or cold. Next its demand for a much more complicated and duplex arrangement of our sensory nervous systems—cranial as well as cord—than present anatomy gives any suggestion of. And finally the objection that it demands hypothetical complications for which there is no need whatever—all the phenomena being much more reasonably explained by the very simple theory of pain-nerves.

These are formidable objections to the only theory that is reconcilable with Professor Strong's summary of present evidence. On the other hand, the sole evidence, as we have said, which he brings against pain-nerves, is the fact, apparently, of their not having been objectively demonstrated. But without pressing Professor Strong to explain in what respect Wundt's 'shunt routes' have been *more* objectively demonstrated than pain-nerves, I will ask what sort of demonstration of pain-nerves he can ever reasonably expect, even granting them actual existence? Suppose he actually saw two fibres ending in a touch corpuscle—one a fibre of pain and the other of touch—would he expect them to look different? And since, according to his own view, they are stimulated by the same cause, and, as I have suggested, very likely by the same end-organ, is it likely that he would be able to distinguish the two by direct normal experimentation?

In so far as I can see, therefore, the best possible evidence we can well hope for with reference to pain-nerves is precisely that which we now have. Namely, the frequent occurrence, normally and pathologically, both of pain without other sensations, and of other sensations without pain; and above all, the entire harmony of the doctrine with the remaining facts of neurology, both existent and genetic. As against this, the unceasing struggle of modern

psychologists to patch up the old 'combination theory' in the face of overwhelming difficulties, and with nothing whatever to recommend it save the 'hoary respectability of tradition' is surely a remarkable exhibition of the vitality of custom. By way of rousing Psychology from this slavishness, I am inclined to endorse the emphatic words of Professor James; namely, that we have in the traditional pain-pleasure theory "*one of the most artificial and scholastic of the untruths which disfigure our science.*"¹ A great step is gained, however, by Professor Strong rejecting one-half of this monstrosity. So bisected, the other half is likely to die very decently.

HERBERT NICHOLS.

PROFESSOR WATSON ON REALITY AND TIME.

In a recent interesting article, Professor Watson aims to clear up the relation of time to the absolute.² He devotes most of his space to preliminary considerations in psychology and to the examination of Bradley's conception of reality and of McTaggart's recent exposition of Hegel's doctrines of the absolute and of time. Professor Watson's own view of the time-process in its relation to the absolute is stated only as it is implicated in these criticisms—the positive treatment being reserved for a later article. The conclusion which he thus announces is in these words: "An Absolute which manifests itself in the time-process, and yet is self-complete." This view, however, must not be considered as the traditional 'reality-behind-appearance-view' of the transcendentalists, as Professor Watson is at pains to say: it is much nearer, as the present writer understands it from the partial statements of Mr. Watson, to the later view of Lotze contained in the *Metaphysic* (as contrasted with the Lotze of the *Dictaten*). This may be made plainer by further quotations. Professor Watson says: "If the Absolute is self-complete apart from the time-process, it cannot be manifested in that process: if it is manifested in the time-process, whether it is self-complete or not, at least it cannot be self-complete apart from the time-process, but the time-process is essential to its self-completeness." "We reject as self-contradictory the conception of the Absolute as self-complete apart from the time-process." Lotze's view, with all its ins and outs, is well presented by Falckenberg in his recent articles: and the pondering of his views, especially the distinction whereby he finds

¹ *Psy. Rev.*, Sept. 1894, p. 525, note.

² *The Absolute and the Time-process. Philos. Review*, July, 1895, pp. 353 ff.

succession necessary to an Absolute which is changing reality, while duration can not be so considered, leads us to see that his problem is very similar to that which Professor Watson is taking up, when he goes on to say "we are immediately confronted by the difficulty that a world that is in process does not seem to be self-complete." It may not be fair to anticipate that Professor Watson's solution will finally be similar to Caird's: and it is difficult to see how he can finally get an Absolute which will be free from the charge of being 'static.' But there are indications in this article that Professor Watson, who has the just reputation of being one of the very ablest of the 'Intellectual Idealists,' is going to work that kind of thinking free from some of the weaknesses with which it has been beset in the eyes of those who are unable to find in the dynamic categories simply the 'telling-off' by us finites of a series of intellectual terms. What I mean by indications are these: Professor Watson in this article seems to recognize the need of some kind of an ontological construction of evolution—although there are indications, too, that he may fall back on the resource to be found in the subjectivism of the category of evolution (pp. 367f). Farther, Professor Watson shows a certain unexpected affiliation for Lotze, again, in essentially agreeing that the question of metaphysics is 'what reality is: not how it is made.' He says: "If it is asked *why* the Absolute reveals itself gradually in the finite, I should answer that the question is absurd: we can not go behind reality in order to explain why it is what it is: we can only state what its nature, as known to us, involves." Does not this seem to 'indicate' that there may be some further agreement toward a dynamic view of reality, in spite of Professor Watson's contention that reality must be self-complete in the sense that it is intellectually constructible? Then there is a third 'indication.' It is found in the good piece of psychology which Mr. Watson gives us in this article in treating of conception and judgment. This psychological digression is not new in its teachings: it is a series of views made very clear by the newer logicians. I myself developed the same views in the first edition of my *Senses and Intellect* in 1889. But the use which Professor Watson makes of the 'organization view,' as I may call it, of conception and judgment, is what I find interesting. I shall speak of his point against Bradley further along: here it is enough to point out that Mr. Watson finds reality a function of progressive mental organization—thus denying the very possibility of a construction of reality apart from this organization itself.

How then can the inference be avoided that the absolute arises as real by mental construction also? But we have no intellectual organization of which the untemporal, the logically self-complete, the undynamic, is a function. Professor Watson, it is true, avoids this issue, and contents himself with the old antithesis of the intellectualists—"The consciousness of the finite presupposes the consciousness of the infinite" (p. 368), and "we are compelled to regard all finite or dependent being as presupposing a self-determining principle" (p. 368). Why are we? I for one, am not. To be sure, if we make a logical antithesis with a supposititious finite, defined as dependent, at one pole, we must go on to put a supposititious infinite at the other pole: but it is going back to scholastic logic to say that either must then have reality, or gets it by this dialectic of terms. As a matter of fact, when I ask my consciousness for the mental organization which issues in the conception 'infinite', it is not there—and in my private view, neither is it there for the logical term finite; but that is by the way. If this be true, that there is no mental construction of any such object as the infinite or the absolute, how, on Mr. Watson's true psychology, can there be a function of it called its reality? Or is this the exception in the doctrine of reality which proves the rule?

In his preliminary determination of the Absolute, in the course of which the examination of Bradley occurs, Professor Watson makes good use of the 'organization view' of reality, as I have termed it for brevity sake. The aim of his criticism is to show 'that reality in its completeness must be a thinkable reality.' "If it is meant that there is in reality something which cannot be made the object of thought, because it is unthinkable, I do not see what kind of reality this can be" (or by an impertinent paraphrase, I can not think it!)

The argument is forcible, and but for certain criticisms of limitation, in my opinion valid. It runs thus: If reality is, as a true psychology teaches, nothing apart from the mental construction or content itself which is said to be real, then there can be no room for Bradley's contention that the knowing or judging process always vitiates reality, inasmuch as it issues in a series of partial predications, none of which adequately expresses reality, and which are in the main contradictory among themselves. This is, it will be remembered, the road which Bradley takes to show that all knowledge is appearance or pure *Schein*. Now, says Watson, such a reality apart from the organized content of knowledge is quite supposititious: the very meaning of reality is psychologically just this mental organ-

ization, at the different stages of it secured by progressive conception and judgment. So Bradley's distinction between that which would be real if we could get hold of it, and that which is not real because we have got hold of it, is throughout a false distinction. This criticism is valid, I think, as against Bradley's impeachment of judgment; but not valid as used by Professor Watson in his further positive contention that if this be so then reality must be capable of being thought, in whatever instance it be considered, and so in the instance of the absolute. True as far as it goes, this view of reality is yet inadequate psychologically, and proves in the sequel not only to leave other views open, but to allow a return to the essence of Bradley's contention. This I may take a little space to show.

A reading of the recent new-school Logics,—Sigwart, Bosanquet, Bradley, and above all the disciples of Brentano,—shows us that there is a partial agreement in regard to the predicate 'existence.' This agreement may be brought out in the light of the foregoing by saying that Professor Watson converts a proposition which is (1), not universally true and is (2), inconvertible. He says, in effect, all mental constructions give us at once and *ipso facto* what we mean by reality, hence all reality must be found in such possible mental constructions.

Taking the first member of the sentence first—it is not true as a universal. The Logics say differently; and this is just the value of the partial agreement they are effecting, as against the older interminable disputes as to whether existence added anything, when thought in connection with an object, to the mere thought of the object. The Logics say in answer to this question: No; the thought of existence adds nothing to the object as merely thought. And this is the valuable contention which Professor Watson enforces against Bradley. But the Logics then go on to say more: The thought of existence is a different psychological mode, nevertheless, and finds itself quite a different psychosis. The thought of a thing as existing has the mode, or is the psychosis, which we call *belief*. And whatever it is that constitutes this 'mode' different from that of the mere thought-content itself, it is a real difference which psychology must recognize. It is not all thought-constructions which carry the reality predicate. It is only some of them. Sigwart would say only those which are (necessarily) judged by us: Bosanquet seems to wish to say only those which carry some kind of necessity other than the necessity with which sensations break in upon us. But whatever the lines of distinction be, they must be lines drawn by something else than thought; since the content remains the same—to be believed

to be real or not—and existence is not a thought-predicate. The distinctions are really, in my opinion, distinctions of *attitude*, motivated largely by differences of feeling.

Furthermore—to take up the second point—even if it were true that all mental constructions carried reality with them, yet such a proposition could not be converted. There is yet a simpler form of consciousness, a mode of dealing with content, which does not involve existence as a predicate, but which nevertheless suffices for our prevailing activities in the presence of realities. 'Reality-feeling,' as I have called it, precedes belief; and belief—the assertion of the reality predicate—gives a return of the 'reality-feeling' again after a transition period of doubt, hesitation, suspension of judgment. Without taking space for going into points made earlier¹—for the added reason, also, that they may be individual to myself—I may be content to put the fact in evidence that it is only a part of the realities which we get that are thought-constructions: most of them are after all *felt*. For example, does not ethical appreciation always run ahead of scientific description?

If these points be true, how can we say that the ultimate must, in virtue of psychological deliverances, be capable of being exhausted in terms of thought?

It would seem to be a competent statement, if we should modify the sentence, 'reality in its completeness must be a thinkable reality,' of Professor Watson; and say: reality in its completeness can not be merely a thinkable reality; even though it be capable of being thought, it must have in it the quality of moving the possible thinker in the ways we call belief, ethical appreciation, &c.; and farther, it may be so simple a thing, to the consciousness in which we are supposing the appeal to do the thinking about it to be made, that it can not be thought at all, but rests in its own limpid immediacy. This would seem to be the conclusion from the appeal to psychology, if Professor Watson insists on making it: and such a simple 'given' would seem in a measure to justify Mr. Bradley's insight in calling it 'that' as opposed to the 'what.'

J. MARK BALDWIN.

PRINCETON.

¹ See my *Feeling and Will*, Chap. VII., and the article *Feeling, Belief and Judgment*, in *Mind*, July, 1892.

PSYCHOLOGICAL LITERATURE.

GENERAL.

An Essay Concerning Human Understanding. JOHN LOCKE. Collated and annotated with prolegomena, &c., by A. C. FRASER. Oxford, Clarendon Press: New York, Macmillans. 1894. Vol. I. Pp. CXL+535. Vol. II, pp. 421. Price \$8.

In this book Professor Fraser has done the philosophical world a service which none of those interested will be slow to recognize. We now have for the first time a convenient text of one of the greatest of English classics: introduced by one who is so well versed in modern tendencies of thought as to be capable of emphasizing the salient ideas of the text: and published in a form which itself makes a commentary on the dignity and common-sense of John Locke, 'the plain man of plain ideas.' The introduction by Professor Fraser covers CXL pages, 'biographical, critical, and historical.' The expository and critical part seems to the present writer to have all the merit of the calm and judicious spirit, coupled with directness of style, which characterizes Professor Fraser's 'Berkeley,' and which serves to set Locke forth in a peculiarly favorable light. It is so different from the form of 'Introduction' begun in England by Green and carried forward by the others—Caird, Jones, &c.,—which begins by obscuring what seems plain, and then trying to teach a new form of obscurity by 'showing up' the other. It may be true, as one sometimes hears, that the best exposition always comes from the man whose own opinions are not 'urgent for the utterance,' and it may be that it is for this reason that Mr. Fraser sticks true to his text: but in that case we must still be glad that the right man took up the work and hope that he may long be spared to do more of it.

The main merit to which I refer is seen in the many points on which Locke was really innocent of an opinion of his own or ignorant further that he was raising a question. Professor Fraser is true to Locke in letting him stand there in all his unfinished and fragmentary conceptions. Note, for example, the remarks on Locke's doctrine of real existence as resting on 'irresistible assurance' (LXXXIIIff), and the general remarks on Locke's views of 'the idea of self,' &c.

(LXXXV). "The treatment of the subject," says the commentator, "in the *Essay*, shows his disposition to avoid speculative questions, and the ultimate mysteries, and to remain contented with the point of view that satisfies ordinary minds." Yet on this very question, when we come to look at Locke exactly as he was, we see that it is very difficult to find in the new logical treatises which are attempting to set a reality 'necessarily' given in every act of judgment, very much essential progress on the position of the 'plain man' of the seventeenth century. So in other connections, the value of the exposition is as much in setting the author's limits as in expounding his positive theories; for it is just what seem to be his limitations which may be most instructive to the historical student. Has not Locke himself exhorted us in commending Anthony Collins?—"You have a comprehensive knowledge of it, and do not stick in the incidents, which I find many people do."

There is one point of view taken by Professor Fraser in a more positive way, however, which is in line with one side of the discussions relative to Locke's place in the historical movement of later philosophy: the view that Locke's refutation of Malebranche is in turn a refutation of the modern attempt to father a Lockian paternity upon the form of idealism which arose upon the basis of the 'theory of ideas' (XLVIII). "All this sheds light," says Mr. Fraser, "on many passages in the *Essay* in its recognition of the ultimate incomprehensibility by us of our own finite and transitory perceptions, and of God's infinite knowledge; so that human philosophy can offer no theory of either, much less explain the one by means of the other."

The annotations throughout the two volumes, in the shape of foot-notes, show the same moderation and caution: and for that reason they do not contain much of value to the modern psychologist apart from the elucidation of Locke. Possibly the psychologist who gives them the more detailed examination will be more inclined than the present writer to say that they reflect inadequate information in respect to recent phases of psychological thought.

J. M. B.

Friedrich Edward Beneke. The Man and His Philosophy. An Introductory Study. F. B. BRANDT. New York, Macmillan & Co., 1895. Pp. 167.

This is the fourth number of the Columbia College Contributions to Philosophy, Psychology, and Education. It is precisely what its title promises, an introductory study of Beneke and his philosophy,

concise, well arranged, and clear, that is, as clear as any exposition of Beneke's philosophy can be. As there is no other monograph in English on Beneke, and as he represents one distinct phase of the many sided development of the Kantian philosophy, the appearance of this book is timely. Indeed, Dr. Brandt contends that it is in Beneke alone that the true development of German philosophy after Kant is found.

Beneke died in 1854 at the age of 56, having spent nearly all his life as Professor at the University of Berlin, for the most part without salary.

His significance is chiefly psychological. Metaphysics and pedagogy represent applied psychology and received considerable attention. Psychology is to be treated strictly as a natural science; it is to depend wholly on experience and is to follow rigorously the method of the objective sciences. But the experience is to be 'inner experience,' that is, individual consciousness of our memories, imaginations, concepts, etc., as distinguished from 'outer experience,' that is, perception of things. But psychology is by no means to be a mere descriptive science of inner phenomena; in inner experience there is revealed to us the thing-in-itself, the very essence of the soul. To say that this is promising is mild, it is captivating. But when we are told furthermore that this natural science of psychology is free from materialism, that it escapes subjective idealism by giving us a knowledge of other human beings and bodies, that it establishes the immortality of the soul in the form of an immortal personality, it would seem to those in search of a system of philosophy that it would be foolish to look further. Such seekers, however, will be a little disappointed with the outcome. Lured by Beneke's promises of empiricism, we enter upon a long and minute psychological analysis, in which we are introduced to a whole company of elements, powers, processes and existences, with strange names and stranger faces, which put to blush the worst Herbartian 'jargon.' We are told of 'traces,' those unconscious psychical existences which become conscious memories, of 'movable elements,' which form the constituent parts of consciousness, and of primary faculties (*Urvermögen*) and in Beneke's system these are as fundamental and necessary as Herbart's reals and his doctrine of self-conservation and arrest. The soul he defines as a 'concrete psychical organism,' of which we have absolute knowledge in and for itself.

The points of resemblance between Beneke and Herbart are many. Beneke was not, as he said, very much influenced by Herbart, but they were both inspired by the same Zeitgeist.

In his life Beneke was so unfortunate as to be in conflict with the 'court philosophy' of Hegel, for which he had no great liking. It is a suggestive commentary on Hegel and his times and the advance that philosophy has made since then, that whereas the students of those days, accustomed to the sky-wanderings of the master, turned away from the lectures of Beneke with the remark, 'This is nothing but sound common sense.' Students of our day turn away from him for the opposite reason.

However, every student of the history of German thought of this century must read Beneke and Dr. Brandt's introduction will be indispensable to English readers. The monograph has perhaps one fault—not a bad one. The author being himself apparently a very enthusiastic admirer of the system, exhibits occasionally a rather alarming disposition to force it upon the reader, even if, in Plato's phrase, he has to put it bodily into his soul.

UNIVERSITY OF IOWA.

GEORGE T. W. PATRICK.

The Essentials of Logic: Being Ten Lectures on Judgment and Inference.

B. BOSANQUET. New York, Macmillan & Co., 1895. Pp. 167.
Price, \$1.00.

To one who may be interested in the problems of modern logic, this book will prove to be of very great value. It forms a most satisfactory introduction to the general theory of logic. It contains the substance in brief of Bosanquet's larger work. The discussions of Bradley, Lotze, Sigwart and Venn can be far better understood and appreciated, after receiving the illumination and suggestion of these most interesting pages. The point of view of the modern logic is essentially and primarily an epistemological one. How do we acquire that knowledge of the external world which gives to us the fundamental elements of thought with which logic is concerned? As answers to this question, Bosanquet discusses three different positions. The first is that of common sense, which regards the external world as independent of our consciousness for practical purposes. Its activities and happenings proceed irrespective of any apprehension by our minds. The second is that of common sense theory, which in addition to the first mentioned position assumes, concerning the nature of this world, that it is apart from consciousness the same as it is for our consciousness. The third which he calls the philosophical theory, regards the objective as independent of our consciousness in the sense that it is what we are constrained to think in order to make our consciousness consistent with itself. This position is the one which Bosanquet himself holds. It seems

to me to be substantially the same position as that advanced by Sigwart, who assumes as a fundamental logical postulate that the given is necessary. In holding such a position one avoids the defects of subjective idealism; here the real, outside the mind, being inaccessible, falls away. In knowledge there is no passage from subjective to objective, but only a development of the objective. Knowledge, therefore, is the medium in which our world, *as an inter-related whole*, exists for us. Knowledge is always given in the form of a judgment. The theory of judgment becomes the basis of a theory of logic. The main portion of Bosanquet's work is taken up with an elaboration of the theory of judgment. He defines judgment as an affirmation, pronouncing the interpretation of our perceptions to form one system with the data of our perceptions. This interpretation, or enlargement claims necessity, or universality. It is concerned with reality in the sense that the real subject of every judgment is reality, and our world therefore as existing for us in the medium of knowledge consists, for us, of a standing affirmation about reality. Bosanquet's insistence upon the intimate relation of knowledge to reality in judgment, seems to us to be a most valuable and admirable defence of the true theory of logic. It follows too from such a position that the form of knowledge can not be considered wholly apart from its matter. The two mutually influence and determine each other. One of the essential functions of judgment is that of construction, that is, of exhibiting a whole in its parts, an identity in its differences, and in this it is both analytic and synthetic.

Bosanquet presents the types of judgment in an original manner according to the analogy of the development in plants and animals. The idea of a growth in the forms of judgment had already been emphasized in his larger work, whose title contains this idea in the words, 'Logic, or the Morphology of Knowledge.' This growth is traced through the forms of the impersonal judgment, perceptive, individual, and the abstract, including hypothetical and disjunctive. Moreover Bosanquet considers judgment in its distinctive character as a claim to truth. Here we must distinguish between an idea as a psychical presentation, and as a reference to reality. The former is strictly a particular, a psychical image; the latter is both less and more than a psychical image. It contains less and stands for more. It contains only what is central and essential in the detail of each mental presentation, and therefore omits much; it has in consequence an abstract and universal significance. Judgment therefore is the reference of such a significant idea to a subject in reality by means of an identity of content between them. As regards the relation of

judgment to language, the most important features of Bosanquet's treatment are the two following:—that the sentence must be regarded as the unit, and that the copula is not so much a link between a subject and predicate, but as the whole judgment considered exclusively as a cohesion between parts of a complex idea. It is the 'grip' with which the parts of a single complex whole cohere with one another. This leads to a view of judgment radically different from the two opposed theories which regard judgment respectively as a comparison between two ideas, and as a comparison between two things. Bosanquet's theory is that judgment is always the analysis and synthesis of elements in some one thing or ideal content. He strictly maintains the unity of judgment, in which the ultimate subject is always reality, and that it is possible always to mass the whole judgment as a single predicate directly or indirectly true of reality. Regarding the distinction between categorical and abstract judgments, Bosanquet is clear and consistent. The categorical is really the perceptive judgment in which the bond with reality is direct or explicit; in the abstract judgments, the affirmation of reality is indirect. Underlying them is the implied categorical judgment. The hypothetical judgment is based upon a supposition which in turn must rest upon reality. In the disjunctive judgment, there is a combination of categorical and hypothetical, in which negation is itself rendered by the disjunction positively significant. Bosanquet's treatment of negation forms an introduction to the general theory of induction; it is necessary to understand the one in order fully to appreciate the other. Negation contains positive significance, always implicit, which is the basis upon which the negation rests. We deny in consequence of our ability to affirm something incompatible with that assertion which we deny. Bosanquet's theory of inference grows out of his theory of knowledge. Inference is possible because knowledge as the interpretation of our world forms one self-consistent system. Inference in all cases therefore presupposes a system, that is, a group of relations, or properties or things so held together by a common nature that you can judge from some of them what the others must be. In induction you complete the system from the parts; and in deduction, the system being known, suggests the parts and their relations. Induction, thus based upon scientific system avoids the defects of induction by simple enumeration. Its method is by negative instances as already mentioned in which your positive observation is ever confirmed by a negative which has positive value, and which is itself the converse by negation of the original positive observation. The impression

left by these lectures of Bosanquet is that logic is concerned with living thought, and not barren forms; that its sphere is not the ideal, but reality as the source and test of all truth; and that its results are not artificial, but practical and abounding in rich material content.

PRINCETON UNIVERSITY.

JOHN GRIER HIBBEN.

Einleitung in die Philosophie. O. KÜLPE. Leipzig, S. Hirzel, 1895.
Pp. 276. M. 4.

This Introduction may be described as a brief encyclopaedia of philosophical doctrines. Prof. Külpe criticises such works as those of Herbart and Paulsen on the ground that their writers were too much limited by personal opinions as to what Philosophy should be and therefore failed to do justice to many of the factors that go to make up this discipline in its true historic and general sense. He then tells us that it is his aim to give a broad view of all the tendencies of philosophical thought, both past and present, together with a critical estimate of their relative values. In order to make the treatment as objective as possible each discussion is based upon a historical summary including all the important phases of development in the given direction down to the most recent times. These summaries must, of course, be very much condensed and, though it is not to be disputed that they have the advantage claimed of giving a greater comprehensiveness to the work and a firmer foundation to the conclusions, yet it must be seriously questioned whether readers of an 'Introduction,' unfamiliar with the history of Philosophy, will be able to follow intelligently these brief outlines. In this connection we may notice the short lists that are given of the chief works on each subject. These will serve as valuable introductions to general philosophical literature.

Another characteristic of the book is the denial of the possibility of reaching a unitary system in Philosophy. History shows us that widely divergent views exist as to the problems and methods properly belonging to this field of investigation. This disagreement can be explained only by recognizing that the problems are really of a most heterogeneous character and can not be included under a single principle of classification, but must be arranged in distinct departments. We have accordingly to divide our subject into general philosophical disciplines, including Metaphysics, Theory of Knowledge, and Logic; and special philosophical disciplines, including Natural Philosophy, Psychology, Ethics, Æsthetics, Philosophy of Religion, and Philosophy of History. In order to gain a general view of the whole we must have first, a statement of the problems

arising in each of these departments, and second, some account of the general tendencies of thought that have arisen in the effort to answer these questions.

We take up then the problems of the philosophical disciplines. In brief Prof. Külpe's conclusions are as follows: Metaphysics has the mission of developing a theory of the universe which shall reconcile the practical demands of our moral and religious natures with the theoretical demands of our scientific investigations. The theory of knowledge inquires into the nature of the *content* of knowledge, dealing with such questions as the validity and limits of knowledge, the relation of subject and object, the division of knowledge into its material and formal elements, and the nature of general concepts. Logic, on the other hand, has to do with the *forms* of knowledge. It is the philosophy of the methods of thought and reasoning. Psychological logic and mathematical logic are not to be regarded as independent forms. The first is a part of general psychology and the second contributes no new facts but merely another form of expression. Natural philosophy is the discipline which stands in closest relation to the natural sciences. Its duty is the criticism of the presuppositions and methods of these sciences as well as an examination of the several concepts and theories which result from their investigations. Psychology in its earliest form was a science of the vital principle. At a later, and by no means unproductive stage, it was defined as the science of inner experience. The latest, and, according to our author, the true definition of psychology charges it with the investigation of experience in so far as this experience is conditioned by the subject, and since we know subjects only in connection with living bodies we must be more explicit and say in so far as this experience is conditioned by the living, embodied subject. "The chief problem that we must assign to scientific ethics as a special discipline is the collection and analysis of the prevailing moral standards of the day." Aesthetics can do no better than adopt the definition of Kant as philosophy of the beautiful on the one hand, and a philosophy of art on the other. Philosophy of religion is as yet a complex of historical and psychological investigations of religious phenomena. Nevertheless, as a discipline in which the fundamental concepts of theology are subjected to criticism it may hope for an independent development. Philosophy of history is the latest of all other special disciplines and can hardly lay claim to any definite program. It is evident that it will not have to do with the facts of history, but rather with the underlying concepts and methods of its study.

After the problems have been thus outlined we are in a position to take up the solutions that have been offered from time to time in the history of thought. These may be arranged in three groups namely :—Tendencies of metaphysics, of theory of knowledge, and ethics. These various directions of thought may be regarded as independent though not always mutually exclusive. Metaphysical tendencies may be divided into five classes. First, the number of fundamental principles employed gives us a basis for division into singularism and pluralism—this classification being preferred to one in which monism and dualism appear for the reason that these terms express qualitative rather than quantitative differences. Second, the quality of the fundamental principles—whether spiritual or material, causal or mechanical—gives us spiritualism, materialism, dualism and monism on the one hand, teleological and mechanical theories on the other. Third, the attitude towards the question of the nature of God has given rise to pantheism, theism, deism, and atheism. Fourth, a discussion of the freedom of the will has led to indeterminism and determinism. Finally, the psychological tendencies have arisen out of disagreements as to the nature of the soul and the character of psychical activity in the processes of knowing, resulting on the one hand, in substantialism and actualism, on the other, in intellectualism and voluntarism. Theories of knowledge divide on the question of origin into rationalism, empiricism, and criticism; on the question of validity into dogmatism, skepticism, positivism and criticism; and finally on the question of objective reality into idealism, realism and *phænoménalism*. Ethical tendencies may be classed into intuitionism and empiricism in regard to their answers as to the origin of moral ideals; into emotional and rational. Ethics on the ground of their description of the nature of the motives to moral action; into egoism and altruism in regard to the objects affected, and into eudæmonism and utilitarianism in regard to the object sought by moral action.

It will be impossible to follow the discussion into the details. Enough has been said to show the compass and plan of the book. A few of the author's personal views which appear in his criticisms may be of interest. Dualism is defended as the doctrine that agrees most satisfactorily with the special sciences as well as with the demands of the theory of knowledge. The criticism of materialism in this connection is particularly severe. The question of the nature of the soul is left without any positive settlement. The substance theory is vigorously defended against the attacks of modern actualism and yet this discussion ends with the statement that we are not

to regard this defence as a recognition of the validity of the substance theory, but rather as a proof that the impossibility of the existence of such a substance has not yet been demonstrated. It will be interesting to learn how Prof. Külpe's dualism will develop in this respect. Intellectualism and voluntarism are both rejected as one-sided and the position is emphasized that all the elementary forms of psychical activity are to be regarded as on a par. On the question of the freedom of the will the negative position of determinism is defended.

The last chapter emphasizes the impossibility of a system in philosophy and defines the problems that this discipline has to deal with. These problems are three in number. First, the development of a theory of the universe. Second, the criticism of the presuppositions of the sciences as well as their resulting concepts and theories. Finally, philosophy has had historically, and still has the important duty of formulating new problems and methods which shall give rise to new special disciplines.

C. H. JUDD.

LEIPSIG.

Æsthetic Principles. H. R. MARSHALL. New York and London, Macmillan & Co., 1895. Pp. X + 201.

The substance of this volume was given last winter as a course of lectures at Columbia College and subsequently prepared for publication. The author's aim is to present the outlines of his æsthetic theory freed from the psychological detail which accompanied it in his larger work on *Pain-Pleasure and Æsthetics*. The result is a little masterpiece of two hundred pages in which an unusually interesting and stimulating content is presented in a form which possesses many of the qualities of an English classic.

There are two parts to Mr. Marshall's discussion. In the first four chapters under the dual standpoints of the observer and art-producer, the author treats of the Field of Æsthetics; Pleasure and Pain, The Art-instinct and Æsthetic Standards. In the last two chapters under the caption of Algedonic Æsthetics, the negative and positive principles of æsthetics are developed. It is needless to say that the topics are handled with great originality and power. The same mastery of exposition, acuteness of criticism, keenness of analysis, fineness of psychological and æsthetic discrimination and sharpness of dialectical skill are conspicuous here as in the author's larger work, while his rich scholarship, although kept in the background, displays its abundant fruitage on every page.

Mr. Marshall's æsthetics rests on his psychological theory of Pleasure and Pain and it is here, I think, that the strength as well

as the weakness of his position is to be found. Professor James has said in connection with the author's larger work, that he has been more successful than any preceding writer in subsuming the phenomena of pleasure and pain under a single point of view. This is a merit which would not be seriously affected were it to be successfully shown that the point of view is not quite exhaustive. To such a criticism, I think, the theory is in fact, open. Pleasure and Pain are construed by the author as functions of the relation between the nerve supply and the draught that is made on it by the special activity with which it is connected, pleasure arising as the psychological effect of a surplus of nervous energy over and above the normal supply, while pain is the result of an over draught. Valuable as this may be as a proximate generalization, it seems to carry with it the logical deduction that the normal consciousness is hedonically indifferent: in other words, that pleasure and pain are derivative and not original qualities of consciousness. I think, on the contrary, that the weight of psychological authority will always favor the view that consciousness is originally hedonic, a position which the author does not, in fact, distinguish from sensationalism with which it is not identical. For it is possible to maintain that pleasure and pain are original *quales* of consciousness while rejecting the theory criticised by Mr. Marshall; namely, that pleasure and pain are psychic elements from which all other mental phenomena are derived. Sensationalism is not the only alternative here. Besides, I fail to see how Mr. Marshall's own theory can be grounded without recognizing the originality of the pleasure-pain *quale*. His formula seems to explain, not the rise of pleasure and pain, but simply their *variation*, while it tacitly assumes an original hedonic consciousness. If this assumption be admitted, then the last word has not been said about pleasure and pain, whereas, if it be denied, the conclusion is inevitable that consciousness is not, in itself, pleasant or painful, a conclusion which I think sound psychological analysis will disprove, for it seems to me that introspection teaches that normal movements of consciousness tend to be pleasant. Genetically I think there is a balance in favor of the position taken by Baldwin that pleasure and pain arise in the first instance in connection with the first stimulations of the environment. This follows necessarily on the view that consciousness *per se* possesses the hedonic quality. Such a view does not, however, supersede Marshall's, but rather subsumes it under a more primary law, since if pleasure and pain are inseparable from consciousness, the law of its *variation* in consciousness will have its physical basis in the relation of nerve supply to the functional demands.

I find myself in accord with much that the author says about the emotions. But it seems to me that he had not all the possibilities in mind when he, as he in effect does, conceived Sensationalism and his own dual theory to be the only alternatives on the hedonic basis. A third alternative, to my mind more satisfactory than either, arises when we connect the hedonic quality of consciousness with its presentational elements and conceive the emotions to arise out of the synthesis. This enables us to explain the characteristic objectivity of the emotions as well as their complexity without breaking the unity of the mental life by a confusing dualism. I am not here criticising dualism *per se*, but the real dualities in this sphere are, I think, the original distinction between pleasure and pain and also that between pleasure-pain and the representational function of consciousness.

Personally, I confess to some dissatisfaction with Mr. Marshall's excellent treatment of the relation of æsthetics to pleasure and pain. It seems to put pleasure-getting too much in the immediate foreground. It is of course true that beauty gives immediate pleasure. But it is not so obvious that the getting or giving of this pleasure is to be taken as the aim of art or that it supplies its primary criterion. It might seem to be obviously so from the observer's standpoint. But it seems to me that the observer, if his conscious aim is to get pleasure from the contemplation of works of art, misses the true standpoint of art appreciation; whereas, if the point at issue is simply the fact that he experiences an immediate pleasure from the contemplation, it is open to us to seek the grounds of this pleasure, which will be found, I think, in the fact that it satisfies in some way the observer's ideal. This brings the observer's standpoint into line with that of the producer which is concededly the realization of his ideal. The immediate object of the artist thus stands as the ultimate object of the observer. Now it is obvious that if the artist consciously aims at pleasure rather than the ideal, he mistakes the artist's standpoint for that of the moralist or social philosopher. And when we consider the question of the ultimate reference of the artist's ideal, I think, we will find it not to be pleasure getting or giving, but some kind of *realization*. This leads me to think that pleasure supplies only a secondary aim in æsthetics and that its primary aim is to be sought in the ideal reference indicated above.

PRINCETON.

A. T. ORMOND.

CHILD PSYCHOLOGY.

Evoluzione del Senso cromatico nella Infanzia. A. GARBINI. Estratto dall' Archivio per l'Anthropologia e l'Etnologia vol. XXIV, Fascicola 1° e 2°, 1894. Florence, 1894. Pp. 58.

This is a piece of work done at the laboratory of infantile psychophysics at Verona. After giving some account of the investigations of Vierordt, Uffelman, Preyer, Binet, and others, Dr. Garbini definitely sets himself to answer the following questions: (a) Whether the perception of light precedes that of colors, and when, approximately, each of these makes its appearance; (b) In what chronological order the principal colors are first perceived; (c) What would be the most logical method of cultivating the sense of sight.

About six hundred children were examined, and the results very clearly set forth, with the aid of numerous valuable tables. Only a brief outline can be given here:

One would naturally expect that the child's sensibility to light would be developed earlier than any sensibility to differences of color; since the latter requires the separate action of specific spectral rays, while the former is due to an action common to all those rays. And this Dr. Garbini finds to be the case. The new-born child apparently *feels* the light—experiences from it a sort of photodermal sensation which is general and not special in locality. Moreover, the infant during the first five days is distinctly averse to strong light falling upon his eyes; he is *photophobic* by reason of retinal hyperaesthesia; hence Dr. Garbini names this period *il periodo fotodisferico*. During the second period, (which extends from the 5th to the 30th day), the child passes from the condition just described, (*fotofobo*) to a state in which he finds diffused light agreeable, (becoming *fotofilo*), and also accomplishes his first simple perceptions of the *light* and *dark*. This period, therefore, is named *il periodo fotoestetico*. The third period extends from the 2nd to the 16th month, and is called the visual period, to mark the very important advance—made usually about the second month—from passive to active sight. The infant now for the first time directs his gaze, without turning his head, towards luminous objects not too far away, (28–35 day), and later learns to follow with his eyes an object moving slowly from its place (7th week). The fourth period, which begins with the 16th month, Dr. Garbini calls the chromatic period (*il periodo cromatico*), because here the differentiation and perception of colors begins. He employed two methods side by side in making his experiments: The first, (which he calls *metodo muto*),

consists in having the child select, from a pile of colored skeins, one to match the one that lies before him. This method, it will be observed, differs from that employed by Binet in that it requires the exercise of perception only, whereas Binet's method draws upon memory as well. The second, (*metodo verbale*), consists simply in getting the child to name the color of the skein presented to him. The result of these observations is to place the principal colors, in the chronological order of their first perception, as follows: Red, Green, Yellow, Orange, Blue, Violet. Here, it will be noticed, yellow is third in the order of perception, whereas Preyer places it first. Green, too, stands unexpectedly near the head of the list, since both Preyer and Binet place it last but one in their tables. In somewhat more detail the results are as follows: From the 16th to the 20th month the child begins to distinguish Red. From the 20th to the 24th month he learns to distinguish Red better, and to have some confused knowledge of Green. In the 3rd year Yellow is perceived with some uncertainty, and there begins some tentative perception of Orange. In the 4th year the child distinguishes Red quite readily, Green and Yellow not quite so well, and begins to differentiate Orange, Blue and Violet, provided they are tolerably fully saturated. In the 5th year he differentiates Red, Green and Yellow quite well, and Orange and Blue with some difficulty, confounding the latter very often with Violet. One may notice also at this time an advance in the child's ability to distinguish shades. In the 6th year Red, Green and Yellow are perfectly distinguished; Orange, Blue and Violet not so perfectly, but tolerably well; and shades come to be very readily recognized, though considerable difficulty is still encountered in distinguishing tones which lie next each other in the spectral series, especially if their saturation is not very marked. One must say, then, on the whole, that the chromatic sense is still imperfect, even at the close of the period of infancy (end of 6th year). Dr. Garbini finds 2 children in every 100 who at that age cannot name any color; and he finds only 35 in every 100 who can name all the colors readily.

The order in which the child learns to *name* the perceived colors, is, as might be expected, the same as the order in which the colors themselves are learned; but this name-series, though parallel with the perception-series, is not synchronous with it, but lags about a year behind; *i. e.*, the child learns to name any given color correctly about a year after he has learned to know the color itself. This is explained by the consideration that the act of connecting a color with its name is a higher and more complex mental act than that of

merely perceiving the color. Sex seems to have but little influence on the development of the color-sense. Boys he finds rather more advanced about the fourth year, girls in the fifth and sixth years. It is a somewhat remarkable circumstance that these investigations revealed not a single case of color-blindness, though nearly six hundred children from three to six years of age were examined. Those who are familiar with the interesting researches of Jeffers, Meyer and others on this point, will remember that these investigators found as high as 4% of the boys and from .6 to .24% of the girls, more or less color blind.

Dr. Garbini closes with a number of suggestions regarding the training of the sense of sight by means of appropriate exercises in chromatic and other visual discriminations; believing that such exercises, if based upon, and carried out in conformity with the natural order of development, might be of great service in accelerating the acquirement of visual facility and control. If the present writer is not mistaken, this very end is aimed at, and to some degree attained, in our kindergartens.

Transactions of the Illinois Society for Child Study. Vol. I, No. 2. Handbook for the use of Members and Round Tables; including a Plan of Organization and Syllabi for Work in Child Study. The Werner Co., Chicago and New York. May, 1895.

Those who are interested in the study of children will find many valuable suggestions in these Handbooks of the Illinois Society; while for that large class whose lack of interest arises simply from lack of information on the subject, one could scarcely recommend anything better than these little pamphlets, with their definite, brief syllabi and pointed questions. The present number contains the constitution and by-laws of the Illinois Society, an address by Col. Parker, setting forth its plan and purpose, directions for organizing and for undertaking the work of child-study, some twenty-one topical syllabi containing questions and suggestions for the guidance of investigators, and a bibliography of something like two hundred and fifty literary references on the subject.

Prof. Baldwin leads off with a syllabus on the study of the social sense in children, or the observation of cases of special friendship or 'chumming.' Dr. Dresslar gives an account of a plan for the investigation of the decline of habits, with a view to the eradication of evil habits in the child. Dr. Lukens and Col. Parker give directions for the study of child-language; and President Hall publishes again his syllabus on 'Fears in Childhood and Youth.' Drs. Scripture and

Gilbert show how to apply scientific methods to the study of childhood; and Dr. Bolton furnishes some valuable remarks on 'The Prerequisites of the Scientific Observation of Children.' We should free ourselves from our preconceived pedagogical and psychological theories. The student of childhood should be an observer and not a critic. Parents are apt to be poor observers because they 'have too much stock' in the pupil; teachers, because they have, as a rule, too little. Tests of the senses of children are suggested by Mr. O'Shea and Mr. Kinnaman, a schedule for the study of mental abnormalities by Dr. Adolf Meyer, and directions for anthropometric investigations by Dr. W. O. Krohn. One of the most valuable articles in the book is that by Dr. C. C. Van Liew, the Secretary of the Society, entitled 'The Study of the Child on Entering School.' The list of questions asked in this article regarding physical, mental, emotional and volitional development shows the writer to be a keen observer and a thoughtful investigator. Every teacher would do well to study carefully this article and that by President Hall, entitled 'The Contents of Children's Minds on Entering School' (Ped. Sem., Vol. I, No. 2.) Among the remaining articles of the *Handbook* there are two topics of very great importance, viz., the child's imitation of his teacher (by Prof. Bryan), and the child's interests (by Prof. E. E. Brown). The teacher who has enough *interest in* the child to lead him to study carefully and systematically the prevailing *interests of* that child has taken a long step in the direction of preparation for successful teaching.

TORONTO UNIVERSITY.

F. TRACY.

ANTHROPOMETRY.

Physical and Mental Deviations from the Normal among Children in Public, Elementary and other Schools. Anthropometric Work in Schools. Anthropometric Laboratory. Three reports of committees before the Oxford meeting of the British Association for the advancement of Science. London, John Murray, 1894. Pp. 434-453.

The British Association performs an important service in maintaining a large number of committees whose duty it is to investigate special subjects and report before the annual meeting. About fifty such reports were presented at Oxford, a majority of the committees being assisted by grants of money varying in amount from \$25 to \$500. The three reports recorded above are of psychological interest, and attention should be called to them, as the place of publication is such that they are liable to be overlooked.

The committee on deviation from the normal among children report on 50,000 children seen individually by Dr. Francis Warner, 1892-4. Of these 8,941 were found defective in some respect. The greater variability of the boys is not considered by the committee, but is of interest:—19% of the boys were defective and 16% of the girls. It is almost certain that desirable variations would also be found more common in the case of boys. The greater variability of the male is usual throughout the animal kingdom—the females of closely related species are sometimes almost indistinguishable. In so far as the same holds for man is a matter of considerable theoretical and practical importance. The committee give a table showing the nature and prevalence of the defects, the details of which are of interest. The statistics have, however, been obtained after a cursory examination by Dr. Warner, *e. g.*, those children wearing glasses were recorded but defects of accommodation were not determined, and his personal equation must largely influence the results. 'Nerve signs' is a relative term—other observers examining the same children might find these in twice as many or in half as many cases.

The report of the second committee inquires to what extent actual anthropometric measurements are now made in schools and suggests methods for carrying them out. Of 398 schools replying to the circular of the committee, 58 make measurements, but they are usually simply of weight and size. Only three schools test color-blindness, yet this test which could be made in a few seconds would give information of the greatest possible value to one boy in every twenty. We may hope that not only the measurements recommended by the committee, but also certain mental tests, as of memory and attention, may be gradually introduced into our schools.

At each meeting of the Association for the past seven years a temporary anthropometric laboratory has been fitted up, and a third committee gives the results obtained from 155 observers at the Nottingham meeting. The measurements are mostly physical and only become of interest when compared with corresponding results from other races or other classes of the community. It is worth noticing, however, that only one-third of the men had normal vision.

J. McK. C.

NEUROLOGY.

Zwei Fälle von Rindenläsion Ein Beitrag zur Localisation der Vorstellungen.

C. WERNICKE. Arbeiten der psychiatrischen Klinik zu Breslau. Heft II. Leipzig, G. Thieme, 1895.

Grundriss der Psychiatrie. C. WERNICKE. Theil I. Psychophysiologische Einleitung. Leipzig, G. Thieme, 1894. Pp. 80.

Wernicke reports two cases of lesion of the cortex resembling each other closely. There was a defect in the middle third of both central gyri esp. of the ascending parietal, caused in one instance by a blow and fracture of the skull, in the other by the rupture of an artery. The chief clinical symptoms after the defect ceased to be irritative were: tactile paralysis of the right hand with relatively little disorder of the sensibility and of subtle motility. Both cases had a disorder of speech, not unlike that observed in general paralysis, persistent in the case with somewhat larger cortical lesion, transitory in the other. Wernicke classifies the disorder as transcortical motor aphasia. The most important feature in both patients is that they had difficulty in recognizing objects by palpation, although there was hardly any disorder of sensibility in the hand. Wernicke explains this tactile paralysis as a loss of memories (*vorstellungen*), and mentions the very frequent cases of peripheral nerve lesion that form a remarkable contrast to the two just reported by showing very extensive disorders of sensibility with very little impairment of recognizing objects by touch. In lesion of the peripheral nerves, the disorder of tactile interpretation seems to be almost proportionate to the disorder of the sense of position of the members used; consequently this ability of recognizing objects has been made dependent on the integrity of the sensation of position. This seems not to be correct. Wernicke reports a case of locomotor ataxia who has in his right hand marked dullness of the tactile sensibility and complete loss of the sensation of position. The localisation of such stimuli as are felt at all is preserved, and the patient recognizes with his hand many larger objects, but not small ones. In the left hand, the tactile sense is better preserved, there remains a trace of sensation of positions: almost every object of some size is recognized. These cases show plainly that the lack of tactile discrimination cannot be due to the slight defect of tactile sensibility in the two cases of brain lesion, but must depend on the cortical defect.

The anatomical substratum of the tactile conceptions is formed by groups of cells connected by association fibres; the same concrete

object, the same sensation elements, are excited in the same arrangement and sequence, as often as the tactile process is repeated. The ganglion cells of the cortex (which ones?) represent the sensation element; the association of the sensation-elements is brought about by the association fibres. The functional groups thus formed for the tactile preceptions must be located in the part of the cortex which was found destroyed in the two cases reported. Of course, the patients were able to recognize objects with their left hand because the corresponding cortex of the right hemisphere was intact; but cases of so-called asymbolia show that the perception of objects touched is completely lost, as soon as the same parts in both hemispheres are destroyed. Wernicke comments on this statement in a note as follows: "Without any prejudice the defect can be defined, that the conceptions are no longer produced by the process of touch, the cause of this would then be left to further investigation."

A further point of interest consists in the relation between loss of conception of movements and conceptions of writing. Both patients recovered the use of their hand and fingers for almost all single and combined movements, even where tactile guidance was excluded (movements of opposition of fingers). The great difficulty in writing disappeared together with the difficulty in finer manipulations generally. A special center for agraphia seems not to be probable.

Both cases showed plainly that the distribution of the paralysis and the disorder of sensibility shortly after the injury followed the subdivision given by the articulations, leaving the movements of shoulder and elbow perfectly intact. Pain and temperature sense remained unaffected; tactile sensibility was first diminished on the forearm and hand, but returned in a few days; but the sense of localisation remained defective in the hand and fingers.

These observations are of importance because Wernicke bases on them and on his theory of aphasia the psychophysiological introduction of his *Grundriss der Psychiatrie*. It is practically a brilliant attempt of translating the psychological language into the terminology used in dealing with diseases of the brain. Whether it will prove to be more remains to be demonstrated by the practical part of the work. However paradoxical and dogmatic many of the views are, they cannot help rousing thought in the direction of rational psychology. It is difficult to do the work justice in a short review; but the main points may be summed up as follows:

In his theory of aphasia, Wernicke recognizes a sensory projection field S and a motor projection field M. M is the place of

origin of that part of the central motor path which transmits the impulses for the articulation of speech and, at the same time M is the seat of the '*Sprachbewegungsvorstellungen*,' or 'memories of the movements of articulation.' The Sensory field S. is the central end of the auditory path and the seat of the memories of the '*Klangbilder der Worte*' or auditory word images. As such it has the function of *primary identification* of the sounds. The *secondary identification*, the connection of sound and idea, depends on the function of the transcortical association fibres and of the center of ideas, which, of course, is only a schematic term and is really distributed over parts of the cortex very distant from each other. The connection between the supposed center of ideas and the center of motor memories of speech would form the terminal path of the apparatus of secondary identification formation of answers and speech generally. All strange utterances of the insane are symptoms of disturbed secondary identification and Wernicke feels justified in generalizing this and in saying that mental diseases are disorders of secondary identification and have their seat in the transcortical or association tracts without affecting the projection systems except where focal symptoms are sometimes present, as in general paralysis.

The regularity of the association is due to the principle of '*Bahnung*.' The only objective signs of the character of mental processes are the movements which W. subdivides into movements of expression, of reaction and of imitation, three groups that overlap considerably. The following classification would give all the possibilities of disorders of secondary identification :

Psychosensory:	Psychomotor:	Intrapsychical:
Anæsthesia	Akinesis	Afunction
Hyperæsthesia	Hyperkinesis	Hyperfunction
Paræsthesia	Parakinesis	Parafunction.

While W. limits the faculty of memory unduly to the nerve cell bodies (for which view he gives only evidence of probability (p. 22) and against which the theory of the neuron seems to speak), he admits that no special memory-cells are needed. The memory image is nothing but an acquired association of perceiving elements of the central projection field. The difference between memories and after-images of the retina is explained by the fact that the cerebral cortex has association fibres, whereas the retina has none. One of the most important associations of the perceiving elements of vision is that with the memories of the movements of the eye.

Associations of memories of sensory impressions form the 'concrete idea' with its essential and unessential qualities. Their sum is our consciousness of the outside world.

Most associations depend on simultaneity of impressions; another kind depends on the *sequence* of impressions and in a similar way on the principle of the *ausgeschliffenen Bahnen* (traces worn). It is this latter form of associations on which reasoning and our knowledge of the order and causation of things depend. 'The insisting on a knowledge of causes (*Causalitätsbedürfniss*) is an inborn defect or quality of our brain.' The anatomical explanation would be as follows: Pathways would connect the places where the memories of each sense are localised. The regularity in the activity of certain association tracts will correspond to the regularity of things happening outside. The associations are not, however, a picture of the connection of the things themselves, but only the traces left by them in the sensory fields; hence their subjective character. The possibilities of connections seem so numerous that Wernicke resorts after all to the hypothesis that the psychological unit of a memory also corresponds to an anatomical unit. They might be, for instance, the cells of certain cortical "layers which receive fibre processes from the association cells, but at the same time, would be connected with the perception or projection cells." Thus we meet after all the 'memory-cells,' although they were said to be unnecessary.

Lecture 5 treats the consciousness of our body, of the 'primary ego,' as an acquired function of the central projection fields. After a very interesting description of his views on the development and importance of 'local signs' and organic feelings as part of the organic consciousness, Wernicke enters again the field of speculation with regard to the central projection fields. *Organic consciousness* is represented by the perception cells, a primary station of the cortex, which must be passed before the sensory impression reaches the *consciousness of the external world*. "The stratification of the ganglion cells of the cerebral cortex favors such a theory according to which the layer or layers next to the marrow would represent the '*Bewusstsein der Körperlichkeit*' or organic consciousness." This statement almost reminds one of the naive idea of Baillarger, that the stratification of the cortex has a great and by no means accidental resemblance with a voltaic pile.

Lecture 6 treats the importance of the movements and their relation to the organic sensations. The 7th lecture on the consciousness of the personality ends with the statement that self consciousness is really an illusion inasmuch as the mental personality does not perceive itself, but that personality that existed a few moments, hours, days, or even years previous. The last lecture is a clever application of the results obtained to a picture of mental life, lead-

ing over to the special field of psychiatry. The problem of attention is considered with special reference to the power of application of attention, called '*Merkfähigkeit*' by Wernicke, both with regard to the acquirement of new memories and to the remembrance of old ones. The emotion and the relative import of conceptions are studied last and lead over to a consideration of abnormal emotions and delusions, etc.

The little work of only 80 pages contains so many interesting remarks that it cannot be done justice in such a short recapitulation. It shows in a concise and clear manner the trend of thought prevalent among alienists and physicians and is based to a great extent on the previous works of Wernicke. At the same time it shows the wide gaps between our actual knowledge of the functional anatomy of the nervous system and psychiatry and rational psychology all the more as it tries to build numerous bridges with a certain amount of optimism.

HOSPITAL, ILLS.

A. MAYER.

VISION.

Ueber die Erkennbarkeit des Sehpurpurs von Abramis Brama mit Hülfe des Augenspiegels. G. ABELSDORFF. Stzber. der Akad. d. Wiss. zu Berlin, 4 Apr. 1895.

Zur Darstellung des Sehpurpurs. O. KÜHNE. Ztsch. of Biol. XXXII. 21-28.

When Boll first discovered the visual purple, he was of the opinion that part of the red color visible when the eye is looked at through the ophthalmoscope is due to this substance. Becker and Coccius, among others, showed that this is not the case, but that the visual purple in the living eye is completely masked by the thick layer of blood-vessels behind the rods and cones. After it was known that in ultraviolet light the retina fluoresces a light blue when the visual purple is present, and a light green after it is bleached out, it was thought that in the case of an individual whose lens had been extracted, the condition of the visual purple could be detected by this mark; but the fluorescence turned out to be not sufficiently strong, and nothing was accomplished by this means. But Dr. Abelsdorff, working in König's laboratory, has at last been able to watch the gradual fading out of this substance in the living eye. Besides the more common choroidal tapetum, some fishes are provided with a retinal tapetum, formed by a layer of highly reflecting substance in the epithelium cells. Against this white background the visual purple can be plainly seen, through the ophthalmoscope, and

it can be watched at one's leisure as it gradually gives place to the visual yellow, and then entirely disappears. For the details of the proceeding, the original paper must be consulted.

Kühne has at last been able to perfect a method by which the visual purple can be extracted free from every trace of haemoglobin, and hence particularly well adapted to the critical experiments which now have to be made with it. He also succeeds, by means of purifying it with magnesium sulphate and drying it in vacuo over sulphuric acid, in obtaining a dry powder which can be permanently kept, and used at any time, and with any color-depth, in examining the properties of this substance. This important improvement in the method of handling and preserving the visual purple ought to lead, in the light of König's recent researches upon it, to a renewed interest in its study.

BALTIMORE.

C. LADD FRANKLIN.

Ueber den Nachweis von Contrasterscheinungen im Gebiete der Raumempfindungen des Auges. J. LOEB. Pflüger's Archiv. f. d. gesammte Physiologie, LX, 509-518. 1895.

That a spatial sensation becomes modified, if a second spatial sensation is simultaneously produced and attended to, is seen in many well-known optical illusions. Whether this influence ever takes the form of a contrast is, says Loeb, still an undetermined question. It is assumed by some for the directions of lines, but this view is supported only by the very illusions to whose explanation it is applied, and other explanations of these illusions are given.

A simple experiment, however, proves the existence of this spatial contrast. Let the experimenter, with head fixed, place on a horizontal table two lines or points in such position that they shall be equally distant (about 40 cm.) from the intersection of the median plane of the observer with the table, to the right of it, and parallel to it. Place now a third line or point by the side of the nearer one of the other two. The latter will no longer appear to be at the same distance as the farther one from the median plane, but if the third be placed nearer the median plane than the second the latter will appear to be displaced toward the right; if farther, toward the left. The same illusion appears in experimenting with distances away from the observer, as with distances to right or left. Attention to both the inducing and the influenced objects is necessary in order to produce the contrast effect; hence the effect is greater the nearer they are together. The average apparent displacement, measured on eight persons, is 3.6 mm. This spatial contrast explains the fact that

shorter distances of objects from one another appear relatively larger than longer distances; also the fact that two points appear farther apart if other points are placed between them.

No attempt is made by Loeb to explain the illusion which he describes. He merely establishes it as a fact, and calls it a case of contrast; but he does not tell how the contrast is to be accounted for.

Untersuchungen über Farbeninduktion. KR. B. R. AARS. Kristiania, 1895. 15 pages. 3 tables.

When colored surfaces are placed near one another, each affects the impression received from the other, in some cases by contrast-induction, in others by color mixture, called by Aars syncrasy-induction. To investigate these effects, Aars used discs covered each with sectors of two colors, those of the inducing color having an angle of 45° , of the induced color 15° . The effect of eleven inducing on seven induced colors was noted. The distance of the observer from the discs was for the most part seven meters. His results are: (1) Contrast-induction takes place under wider differences of brightness between the two colors than is usually assumed, especially in orange and in green. (2) Syncrasy diminishes and contrast-induction increases when the inducing color lies (in its position in the spectrum) in the immediate neighborhood either of the induced color or of its complementary color. Orange and green, however, offer exceptions. Syncrasy takes place instead of contrast when orange is combined with colors lying near its complement (the blue colors), and when green is combined with its own neighboring colors to the right (likewise the blue colors). This is because the blue colors possess an unusually large coloring power. Yellow shows varying results, easily losing its character as a true color, and leaving free play to the rival influences. White sectors show syncrasy as well as contrast-induction.

These results Aars presents graphically in curves, showing the results of the combination of each induced with each inducing color, and comparing them with the results obtained by the use of rotating discs.

Ueber das sogenannte Purkinje'sche Phänomen. E. HERING. Pflüger's Archiv. f. d. gesammte Physiologie, LX, 519-542. 1895.

If in a light of moderate brightness two colors are chosen of apparently the same intensity and saturation, and the illumination is then diminished, the blues and greens will appear brighter than the

reds or yellows. This is Purkinje's phenomenon, which heretofore has received no satisfactory explanation. Hering investigates and explains it in his characteristically thorough manner. For its production he arranges color glasses before two holes in a door, communicating between two rooms, both of which can be separately darkened, in one of which, whose walls and door are made entirely white, sits the observer, and in the other of which is a white screen which reflects light through the holes. This arrangement permits a darkening, either of the colored surfaces alone, or of the field about them alone, or of both together. He demonstrates the following facts; the explanation of the phenomenon is given most fully under number 4.—1. The simultaneous and equal diminution of the light-intensity of two colors is not sufficient to bring about the Purkinje phenomenon. This can be shown by diminishing the illumination of the screen-room, leaving that of the observation-room unchanged. The blue or green does not then become brighter than the red. Yet Helmholtz had regarded the change in intensity of the compared colors as the essential condition of the phenomenon. This experiment shows that he was mistaken. When blue and red papers are compared, and the illumination of the whole observation-room is gradually diminished, the blue does appear brighter than the red; and in the end the former may become colorless white, the latter colorless dark-gray. The difference between the two experiments is, that in the former the eyes retain their general adaptation for brightness, in the latter they become gradually adapted to darkness. The change in *Stimmung*, or sensitiveness to light, is then the essential condition of the phenomenon; and this fact is clearly established by the next experiment. 2. The mere change in sensitiveness (*Stimmung*) of the portions of the visual apparatus excited by the colors is sufficient to bring about the Purkinje phenomenon, the light-intensity of the two colors remaining unchanged. To show this, darken the screen-room until the colors are but just recognizable; then, leaving their intensity (which remains still apparently about equal) unchanged, suddenly darken the observation-room. The Purkinje phenomenon appears. The illumination of the retinal portions affected by the colored fields remains unchanged, but their *Stimmung* is altered by the darkening of the surrounding field. The sudden change in *Stimmung*, which the entire visual apparatus undergoes in this rapid darkening, Hering calls the instantaneous-adaptation for darkness, in distinction from the lasting-adaptation which results from remaining a considerable time in darkness. By covering-over one eye during the night after considerable sleep, and

keeping it closely covered until the experiment is tried, it is possible to compare the appearance of the phenomenon to an eye with instantaneous-adaptation, and to one with lasting-adaptation for darkness. In both cases the phenomenon is more striking when the colors are observed in indirect vision. 3. The phenomenon appears when there is a simultaneous change in the Stimmung of the eye and in the light-intensity of the colors. This can be shown by darkening both rooms, or by the ordinary observation of the phenomenon with colored papers. 4. The Purkinje phenomenon is characterized as much by the change in saturation of the colors, as by the change in their relative brightness. If we take two colored papers, spectral red and spectral blue, which in daylight appear of nearly equal brightness, and then gradually darken the room, both colors become less saturated, and the change in saturation of the red is entirely different from that of the blue: the latter becomes constantly whiter and finally a colorless light-gray, the former darker until it is colorless dark-gray. This gradual disappearance of the colored components as against the colorless, and thus the change in saturation of the colors, is a *conditio sine qua non* of the Purkinje phenomenon. It has been heretofore overlooked, yet it is responsible for the change in brightness of the colors, and it depends itself upon the difference in the admixture of white with the original spectral colors. If a blue and a red are chosen which have an equal admixture of white, the red in good illumination will appear brighter than the blue, which difference will gradually become less if the illumination is diminished. A blue which appears in daylight of the same brightness as a red, has really a larger admixture of white: for, as Hering has previously shown, a red or yellow component has a relatively brightening effect, a green or blue a relatively darkening effect, on the total sensation. In the ordinary demonstration of the phenomenon, we choose a red with a small, a blue with a larger admixture of white. In ordinary light they appear of equal brightness; when the illumination is lessened, the colored components produce less and less effect, the colorless become more apparent and their difference is emphasized by the adaptation of the eye for darkness. Hence the brightening of the blue and the relative darkening of the red. 5. The Purkinje phenomenon can be produced by a mere change of the illuminated portions of the retina. The sensitiveness to white increases, that for colors diminishes, from the centre of the visual field toward the periphery. This is especially true when the illumination is slight, and the eye is thus instantaneously or lastingly adapted for darkness. If then we darken considerably first the screen-room, and

then the observation-room, a red and green may still appear saturated and of equal brightness by direct vision; but to indirect vision the green will appear brighter, because the different admixtures of white in the two colors will become more perceptible. 6. The Purkinje phenomenon is essentially unchanged, when homogeneous spectral light is used, in place of colored glasses or papers. 7. König has made extended measurements, in which, having made two different spectral colors of the same apparent brightness, he repeated the operation for different degrees of light-intensity of one of the lights. He found that intensities of the second light were necessary, in order to make it appear equally bright, which showed a constantly different relation to the intensity of the first light, varying with the degree of intensity of the latter. These measurements are unreliable, because the apparent intensity of the lights he used depended not only on their 'absolute intensity,' but also to a large extent on the momentary and changing adaptation of the eye; and he took no account of the latter factor.

BROWN UNIVERSITY.

E. B. DELABARRE.

Die Spontane Umwandlung der Nachbilder der Sonne in reguläre Sechsecke oder Achtecke. G. WAGNER. *Zeitsch f. Psy.* Band IX, Heft I. Pp. 17-22.

Subjective Visual Sensations. W. R. GOWERS. The Bowman Lecture, delivered before the Ophthalmological Society on June 14, 1895. *The Lancet*, June 22 and 29. *Nature*, July 4 (condensed).

Dr. Wagner has observed that the circular after-image of the sun may in his case spontaneously change to a hexagon or an octagon. The change usually occurs in the negative phase of the image, but after it has taken place it lasts until the image disappears. He sees the phenomenon best when he gets by accident an image of the setting sun and on the periphery of the retina. He says the beginner must practice regularly for fourteen days before he can expect to see the images, but does not make it clear whether or not his observation has been confirmed by others. The 'beginner' should, however, be very careful in undertaking to observe after-images of the sun, or he will suffer the experience so graphically described by Newton. The hexagons observed by Dr. Wagner seem related to that seen by Purkinje (*Physiologie der Sinne*) on revolving wheels—which he could only see with one of his eyes and which does not seem to have been subsequently confirmed—and the hexagonal subdivision of the field of vision described by Dr. König (*Gräfe's Archiv*, XXX). The hexagons would seem to be due to some structural

peculiarity of the retina, but no anatomical basis has been observed, and it may be necessary to seek for it in the brain rather than in the retina.

Dr. Gowers in an interesting lecture describes the subjective visual sensations preceding epileptic fits and megraine or 'sick-headache.' In the case of epilepsy the images may be 'stars,' flashes or luminous spheres, or they may be hallucinations. The image often crosses the field of vision and is followed by movements of the head and eyes. A curious fact is that bright reds and greens may appear in the periphery of the retina beyond the field usually assigned to color-vision—a fact the present writer has observed in the case of after-images. Dr. Gowers exhibited and deposited with the society sets of drawings showing images which occurred as precursory symptoms of sick headaches. These are zig-zag lines resembling the outlines used in fortifications. The angled and zig-zag lines seem related to the hexagons noticed above. Dr. Gowers thinks the phenomena are due to discharge in cerebral centers, and the present writer believes that this is correct and that it is not reasonable to attribute the complex phenomena of vision chiefly to the retina.

J. McK. C.

ETHICAL.

The Rise and Development of the Moral Feelings. A. A. TOKARSKIY.
Voprosi filosofi, VI, 1, Jan., 1895.

We receive from the external world feelings and groups of feelings (or perceptions) which function in memory as ideas and concepts. Each feeling and perception is accompanied by a felt tone, which is either pleasurable or painful. These qualities of pleasure or pain awaken corresponding ideas and concepts, only weaker in degree; but unlike the original feelings, which proceed by reaction of the organism upon external stimulation, the corresponding ideas and concepts are dependent exclusively upon the nature and social position of the percipient. Consequently as from the ideas one cannot always infer the corresponding feeling, just so the same feeling hardly ever accompanies the same idea. This general psychological observation may apply to those feelings called moral.

Moreover since every feeling has in consciousness a corresponding idea we find at the same time growing up through a process of abstraction a few universal principles to which each class of feelings is invariably referred. That is, as we know the percepts and ideas with which moral feelings are united in us, just so we are able to

find the universal—the known abstract formula, which will show to us in all its generalizations, the object of moral feelings, and which at the same time will give them their most general characterization. All experiences divide into two groups: (a) Those that suggest the desire to govern; (b) those that do not.

Those experiences that suggest the desire to govern are such as satisfy the needs of body or mind—personal needs, satisfaction of which can give only pleasure. As such they are quite relative to the individual, and are in consequence termed Egoistic feelings.

On the other hand, those experiences that cannot suggest the desire to govern, do not remain indifferent to us; but according as each stimulation by our essential nature is pleasurable or painful they are in every case distinguishable.

It is in this way we find moral feelings proceed under the two general categories (a) of pleasure, as determined by what is good for the organism; (b) of pain, as determined by what is bad for the organism. Along with the sense of pleasure, as determined by what is good for the organism, follows the desire that the object of that pleasure should continue to exist; and in turn the feeling that threatens dissolution of pleasure gives uneasiness or pain. That is, pain at the loss of a certain pleasurable feeling that has been good for us in the past, gives, at the same time, increased feeling for life, which in its very tone as pain (or pleasure) is the beginning of the moral sense.

The Egoistic and Altruistic moral Feelings do not then find their respective meanings in a qualitative difference, but since both rise in the desire for increased life, they rather differ in the nature of their object. The Egoistic terminate in the desire to govern, and are thus individualistic. The Altruistic find meaning in reference to an object world as such; while from the standpoint of the Egoistic feelings it is possible to show how man might have developed moral feeling in perfect isolation, yet, as a matter of fact, man has from the first displayed social impulses which give moral feelings their other aspect as altruistic.

Altruistic feelings are exhibited under the rubric of Sympathy. Those feelings that suggest or interpret Sympathy are the most intensive states such as the mere affects of joy or sorrow, so far as these states are communicable.

Sympathy may be generically defined as the general capacity to reproduce by oneself feelings experienced by another. Under this general rubric two specific forms must be distinguished.

a. Organic sympathy arises from purely physiological peculiari-

ties of similar organisms and as such is a phenomenon to be experienced only in a community of like needs and interests.

b. Condolence or Co-suffering, as a specific form of Sympathy, is the capacity of reproducing in oneself, the pain experienced by another of like constitution.

From the above specifications, it may be inferred, moral feelings, however egoistical in origin, are only experienced in full (as worth) when man contemplates the object—nature and man, which by its universality and intensity drives out the lower Egoistic moral feelings. The subject is further developed in its social bearings.¹

PRINCETON.

LESTER JONES.

Werththeorie und Ethik. CHR. EHRENFELS. Vierteljahrschrift für wissenschaftliche Philosophie, 1893, I, 76; II, 200; III, 321; IV, 413; 1894, I, 77.

In these five articles the author treats of his subject under three topics: an analysis of the general idea of value, the theory of the variation of value, and its special relations in the sphere of ethics. There is an introduction with criticism of the labors of Menger and Wieser in this field. Ehrenfels regards value as proportional to utility, and subject to the law concerning the final degree of utility, which is determined by the supply and demand ratio. Utility is the capability of satisfying need, either appeasing desire or relieving discomfort and pain; this is not in relation to the passive states of pleasure and pain, but rather to the active wishes, the striving and willing. Value, therefore, is in proportion to the intensity of desire. It may refer to the worth of an object in and for itself, or merely for what the object is able to effect. Utility may be regarded in a special or general sense; as special (*Nutzer*), it is that which produces value which can be interpreted in terms of happiness, as general (*Frommen*), it is that which creates value of any kind whatsoever. Concerning variation in value, Ehrenfels emphasizes its psychological basis in that continuous changes in desire and general disposition produce variations in our estimation of objects which are capable of satisfying our varying needs. Moreover, different persons possess different aptitudes, some of which are original, others acquired in process of development of the organism, others again are occasioned through individual propensity to variation. Natural desires are modified in various ways through psychological laws, such as that of habit, of disuse, of association, or of the transfer from feeling to its cause, thus awakening the potential feeling

¹ From the manuscript translation of A. W. Herdler.

through ideation, or through representation of the objects which are calculated to arouse the feeling. Moreover, the influence of mind upon mind is a force which modifies one's idea of the pleasurable and the painful. This force may act through compulsion, example, or suggestion. The latter may be either normal or hypnotic. Value will vary with the desires thus modified.

Again, an object may be esteemed in one of the three senses: as means to an end, as an end in itself, or as the secondary consequences of the end. Variation in value may arise, either in the transfer of esteem from the end to the means, regarding the means as an end in itself, as the miser and his gold; or in the transfer of esteem from the end to the consequences of the end, as in the case of regard for food for its nourishment, rather than mere appeasing of hunger. Value thus derived through consideration of the more remote consequences attending the use of certain objects, becomes a factor in the development of the organism and the race. Those races have survived who have esteemed the various objects whose use has made for the preservation of life and increase of strength and power in the struggle for existence.

Each organism, moreover, has its own peculiar and limited sum of vital energy, and capacity for assimilation and adaptation. Desire will vary with the plus or minus of this vital energy, and this in turn will cause corresponding variations in value. The excess or deficiency in vital energy gives rise to four types of activity, resulting in mere preservation, in development, in arrested growth, and in degeneration.

Here follows a presentation of the theory of value in its ethical bearings. He draws a distinction between social and individual ethics. Ethical value is estimated in reference to the corresponding psychological state of elevation or depression which accompanies man's views of life's problem and the mysteries of existence. The feeling of elevation is mystical good. Whatever promotes it is good, and of value accordingly; whatever does not is evil. The psychical accompaniments, experiences, duties, etc., go to make up the ethical sanction. The highest ethical sentiment is love; and yet benevolence and sympathy, and all altruistic virtues must be coördinated with the purely individual virtues, as integrity, thrift, loyalty, etc. As to the worth-judgments, there are two types, the naïve and the sentimental, which are illustrated in ancient and Christian philosophy respectively. There is a like derivation of ethical value of an object considered in and for itself, from the utility of the object considered as means to end. Ethical worth is thus founded upon a

utilitarian basis. There are three categories of ethical value determined by the presence or absence of the utility factor, as follows:

1. Objects, or conduct still regarded as having ethical value which once possessed utility, but in course of development their utility function has disappeared. This gives rise to the two types, of arrested development and degeneration.

2. The normal ethical valuation of objects, or conduct whose utility is still existent and apparent.

3. Where the end to be realized is as yet ideal and not actual.

Ehrenfels suggests the question whether the law of the final degree of utility applies to the sphere of ethics. He calls attention to the fact that certain actions, as self-support, care of the young, while useful can not be considered as having ethical value, inasmuch as the predisposition to such actions is instinctive, and therefore always present in sufficient quantity and degree to further the preservation and welfare of the race. There is a necessity here of understanding the law of the increase or decrease of ethical supply. The tendency of ethical disposition is to manifest itself where it is most needed, and therefore most highly valued. There is a progress, moreover, in ethical estimation, in the formation of new ethical characteristics and feelings in man's aspirations after inner harmony with his social environment, also through man's progress in the better understanding of his social environment, and the conditions of its welfare, together with the continual widening of his ethical sphere of interests and activities. As to the ethical ideal, the principle of greatest good of greatest number must be supplemented by the principle of greatest progress. And yet it must be observed also that the greatest success and satisfaction follows one who is engrossed in the activity attending the pursuit, while the importance of the end is lost sight of for the present at least. In the striving itself there is real moral worth. From the standpoint of the ethical sanction, that condition or activity has greatest moral value which brings one into complete harmony with his environment, both present and future. In the appendix Ehrenfels gives an extended criticism of Brentano's theory of a good in itself as the basis of universal moral law. These articles abound in very careful analysis, and are rich in illustration and analogy. They furnish a utilitarian basis for morality, and are open to the general criticism of utilitarian ethic. It seems to me, also, that the idea of value cannot be preserved in all its manifold significance in passing from the economic to the ethical sphere. The analogy is suggestive, but there is danger of pressing it too far.

Zur Frage über die Freiheit des Willens. M. SWEREFF. Vierteljahrschrift für wissenschaftliche Philosophie. 1893, IV, 476; 1894, I, 98.

The subject is treated in the first part in a critical manner, and in the second the author presents his constructive position. He finds a fundamental error in the traditional statement of the problem which recognizes an antithesis between freedom and causality. Free-will must then be considered as wholly uncaused and therefore essentially lawless. The result is that human activity is reduced, as Paulsen puts it to a 'series of disconnected and undesigned accidents.' Causation and freedom must therefore be considered, as the inner and outer aspects of one and the same phenomenon, and not necessarily in conflict. They can agree if considered as concepts of different categories, such as the categories of sound, and color. The theory of indifferent choice does not remove the difficulty. Choice, if it means anything, signifies a choosing for some reason, or some ground. An unmotivated choice is the same as the lawlessness above mentioned. Again, we do not avoid the difficulty in the theory of self-determination. This does not clear, only obscures the question. The old problem still emerges,—is the self-determination through motive or not? The free-will dilemma still confronts us. Another theory that the will is an originally creative act, only suggests the same old query,—is the creative act according to some recognized end or not? Is there a reason for the act in question, or not? The same difficulty lies at the bottom of all these theories.

As to Swereff's constructive position, he holds that the question of freedom of the will concerns only deliberative actions. Where distinctly recognized alternatives are before us; all automatic or ideo-motor actions do not raise the question of free-will at all. He is free who chooses according to his reason. Reason regarded as motive to action has the power of silencing and ruling all other motives. This power varies in man according to birth, education, etc. It varies also in the individual at different times according to presence or absence of conflicting motives. Here arise also moral considerations. Every one possesses ideas of a distinction between good and evil as immediate deliverances of the judgment. Here it must be observed that law and motivated regularity in the sphere of understanding is quite different from the same in the sphere of impulse. How then explain choice, and responsibility with this law of mental activity, namely the compulsion of reason? Responsibility must be regarded as incompatible only with a law of external necessity. Reason is the expression of the Ego and reason founded upon

law means that the law is itself the expression of the Ego. Determined by Reason means in the deepest sense self-determination. Responsibility arises from fact that conduct must emanate from *me*. Responsibility is for what I essentially am.

An objection is considered, namely, that reason in the last analysis is dependent upon the will, the fixation of attention, etc. This is answered when we consider the true concept of a unity of consciousness, in which feeling, reason, will all function. While all operating together, the predominating factor gives character to the resulting activity as will, reason, or feeling respectively. A second objection is that which is suggested by the statistical study of social phenomena, as observed in the labors of Süssmilch, Quetelet, and others. Here it seems as though regularity emerged in the midst of confused and widely different phenomena. Regularity in the aggregate is the law. There are laws of disorder as well as order. This is not incompatible, however, with the fact that the laws of reason should find objective manifestation in the activities and affairs of man. Swereff's discussion of this old problem is of value chiefly because of his psychological insight, and the fact that he attempts to solve the difficulties of the question by means of clear psychological definitions and distinctions.

Einiges zur Grundlegung der Sittenlehre. J. PETZOLDT. Vierteljahrsschrift für wissenschaftliche Philosophie. 1893, II, 145; 1894, I, 32; II, 196.

These articles are based upon a criticism of Franz Staudinger's '*Die Gesetze der Freiheit*.' Staudinger's theory of subjective contradiction, as the beginning of all volition, may be illustrated as follows: In hunger the impulse to action in order to satisfy the craving of appetite, arises from the mental representation of a contrast between some former state where food was at hand, and the present state where it is not. This creates a subjective tension towards some change which is the potential of the act of willing and capable of calling it forth. Some such experience characterizes the antecedents of every act of volition. Petzoldt modifies this theory substantially; he suggests that the subjective contradiction starts a series of activities whose end is stability. The mind is satisfied with that stability alone which can be expressed either in general concepts or in laws of nature. The end of science is to discover such concepts and laws, that in the repetition of any series eventuating in them, we would not wish any change whatsoever, but are satisfied to rest therein. The germs of this theory he finds in the theory of the vital

series elaborated by Richard Avenarius in his *Kritik der reinen Erfahrung* 1888-90, and in his *Der menschliche Weltbegriff* 1891. The theory of Avenarius concerned only the central nervous system, and was physiological in character. The law of tendency towards stability concerns physical, and psychical phenomena also. It is, moreover, supplemented in this particular by the law of 'Parallelismus,' which is the law of the correlation of all modifications of the central nervous system with modifications of a psychical nature. Here follows a criticism of Wundt's '*Princip des Wachstums der geistigen Energie*,' and of Wundt's '*Begriff der geistigen Causalität*.'

The moral ideal finally is that condition of psychical stability in which all aims harmonize. The law of stability as presented by Petzoldt, may be illustrated by the case of a woman and child found by a passer by perishing with cold. He seeks to rescue them, because he recognizes a condition of instability. His mind is ill at ease, restless under such a condition. He seeks to restore the normal and stable condition, at same time bringing his own mind into a like position of satisfaction and therefore stability. In all this, and in any voluntary activity whatsoever, Petzoldt accounts for all mental phenomena, simply by the three laws, of stability, conservation of energy, and the correlation of physiological and psychical phenomena. His theory therefore is purely phenomenal, and disclaims any dependence whatsoever upon metaphysics and metaphysical world-theories.

PRINCETON.

JOHN GRIER HIBBEN.

PATHOLOGY.

Demon possession and allied Themes, being an inductive study of Phenomena of our own Times. JOHN L. NEVIUS, D.D., with an introduction by REV. F. F. ELLINWOOD, D.D. Fleming H. Revell Company, Chicago: New York: Toronto. Small 8°. Pp. x, 482. \$1.50. [1894.]

This interesting contribution to mental pathology would probably fifteen years ago have gained for its author a reputation for nothing but mendacity or childish credulity in scientific circles; but now, thanks to the 'apperceiving mass' which recent investigations into trance-conditions have prepared, probably few readers of this journal will be seriously tempted to doubt its being a trustworthy report of facts. Dr. Nevius, for forty years a missionary in China, who died in 1893, is described by Drs. Ellinwood and Rankin as a man of rare learning, versatility and integrity. From the beginning

of his sojourn in China his attention was attracted to the popular belief in demons and spirits. He found before long that the native converts very commonly believed in demoniacal possession and in the power of Christian rites and invocations to exorcise the spirit. In 1878 he met with his first case, that of a non-Christian native named Kwo who, having bought a picture of the goddess Wang, had been visited by a demon-counterfeit of the goddess in a dream who told him she had taken up her abode in his house. Various neurotic conditions and disorderly impulses had followed, ending in an attack of frenzy during which, the man being unconscious, the demon spoke through his lips, demanding incense, worship, etc. As usual, the demands were met by the family, and the pacified demon thereafter made periodical visitations, throwing the man into unconsciousness and speaking through his organism, healing the diseases of visitors, and giving practical advice. On Dr. Nevius assuring Kwo that conversion to Christianity would rid him of the encumbrance, he became baptized, the trance-state only recurring once afterwards and the demon bidding a formal farewell on that occasion. Fourteen years have passed without relapse. Kwo has had persecutions and trials but no return of his malady, and neither he nor his neighbors think of doubting that he was rescued from the dominion of an evil spirit through faith and trust in Christ."

This case can serve as a type. Dr. Nevius has personally observed several others, and collected a large amount of information on the subject from other missionaries and from native Christians. The possessed persons are unconscious during the attacks, which have often, though not always, a convulsive character. The possessing spirit usually names itself, often as a deity, sometimes as a departed human being, and demeans itself accordingly. Sometimes it makes a formal treaty to behave well, on condition of certain favors being granted it. Sometimes it is driven out by threats or needle-pricks, etc. Christian rites seem to have extraordinary exorcising efficacy. Epidemics of possession, like those recorded in Savoy by Constans and by Chiap e Franzolini are not related by Dr. Nevius. The phenomena are among the most constant in history, and it is most extraordinary that 'Science' should ever have become blind to them. The form which they take in our community is the benign one of mediumship. Dr. Nevius is a believer in the reality of the alleged demons, and in the objectivity of their driving out by the name of Christ, etc. Such questions cannot be fairly discussed, however, till the phenomena have been more adequately studied. Dr. Nevius gives a large amount of collateral material and biblio-

graphical information; and we have to thank him and Dr. Rankin, the book's editor, for an extremely good contribution to a really important subject.

W. J.

Studien zur Blinden-Psychologie. THEODOR HELLER. In. Diss., Leipzig. (Also in *Philos. Studien.*) 1895. Pp. 130.

Introduction. The difficulties in experimenting on the blind consist, says Heller, in the comparative rarity of persons who have lost all trace of color and light-sensations, and secondly in having usually to work upon psychologically unpractised persons who require training for the purposes of research. In the later case, the author recommends beginning with the investigation of the space-sense according to Weber's method, and also familiarizing the subjects with the usual psychological terminology.

I. *Touch in the blind.* The sense of touch is the only space-sense in the blind. In consequence of the limitation of the sense of hearing to the perception of intense qualities, a primarily spatial function cannot be ascribed to it. The blind use hand, tongue and feet in touching. Of these, the tongue possesses the greatest delicacy for spatial discernment. The hand adapts itself best to the exterior form of objects, the feet serve to measure step-movements and to touch objects lower in position. The system of touch-movements and the representation of spatial relations must not be considered as identical. Neither touch-movements nor the system of local signs can produce space, both factors always work together in the development of space representation, being related to each other as synthesis to analysis. The author distinguishes accordingly a synthetic and an analytic touch, but both species often mingle. Experiments proved, that two needle-points the distance between which about corresponded to the space-limen, were only felt apart under a certain normal pressure. With slight touches, or beyond this normal limen, the two impressions melted into one even below the pain-line. Finger-tips and joint-folds showed apparently the least normal intensity.¹ Investigations must always be pursued under the same conditions of temperature. Cold diminishes, warmth increases sensibility. These factors are of far greater importance in the blind than in the seeing. The '*Tastzuckungen*' of the blind already noticed by Tzermak are considered by the author as touch-movements which have become involuntary. As in the sense of sight the author distinguishes a 'direct' and 'indirect' touch, according as

¹ Concerning this see von Frey's recently published works. *Berichte d. Math.-Phys. Classe d. Kön. Sachs. Gesellsch., d. Wiss. zu Leipzig.* 1894-95.

the parts of the hand manifest touch-distinctions of the greatest or less accuracy. The '*unschliessendes Tasten*' (enclosing touch?), which may be performed by one hand or both and in which there is close union of outer and inner touch-sensations, serves for the reception of magnitudes of three dimensions. Synthetic touch transmits, however, only a scheme of objects, adequate representations can only be produced by aid of analytic touch. Instead of Loeb's term:—'*Fuhlraum*' of the hand, the author introduces the expression: '*Tastraum* (touch-space), which he divides into major and minor touch-space (*weiterer und engerer Tastraum*), according to the arm-lengths necessary for its measurement in all directions. Minor touch-space is of the greatest importance in the production of precise space-representation in the blind; for within it are all conditions for synthetic as well as analytic touch. The measuring instrument is here formed by thumb and fore-finger often supplemented by the middle finger. The one hand fixes the object to be felt, the other performing the touch analysis, in which way the blind obtain the representation of the parallel source of two lines, of their convergence and divergence. The author further observed that the estimation of distances by the blind is often exact to a millimeter. The geometric-paptic illusions, observed in the blind by the author and explained by him as analogous to those of sight according to Wundt's theory, are highly interesting. The author disapproves the use of large models in instructing the blind, and recommends close adaptation of them to the relations of minor touch-space. Speaking of the development of touch-space in the blind, the author refutes the statement that the space-representation of the blind rests solely on touch-movements, and while instancing the very various individual development, once more emphasizes the fact that this spatial touch arises first in minor touch-space, representations thus obtained entering later into close relation with major touch-space.

II. *On the association of sensations of touch and hearing.* The statement that the sense of hearing is the real localizing sense of the blind, (so that, according to Preyer, Münsterberg and Kühnan, a person born blind with the surface of the body anaesthetic would acquire a complete space conception through impressions of hearing, and again that normal subjects born blind range their touch impressions in the hearing-space) is supported by the author only in so far as it is understood to apply at the most to the conception of the position of objects, or the direction of a sound-source, not to the representation of the objects themselves. Judging from experiments in which impressions of hearing were frequently erroneously local-

ized, (tone is in general oftener so than noises) the author designates the existence of hearing-space independent of touch or sight-representations as wholly illusory, proving further convincingly the associative connections of hearing-impressions with those of the sense of touch in the blind.

III. *On the so-called distance-sense (Fernsinn) of the blind.* These sensations are of the greatest importance for the protection and self-preservation of the blind. They do not depend on any special touch quality, nor are they primarily peculiar to any particular portion of the skin, only attaining their importance in the skin of the forehead which is highly sensitive to alterations of pressure. The medium of these sensations is the column of air between object and observer. Perceptions of hearing enter, however, as a very important factor into approach-sensations, but only bear the character of a signal-stimulus.

IV. *Surrogate-representations of the blind.* The author accepts this expression introduced by Hitschmann, designating a complex of representations which are present in the mind of the blind together with adequate representations and which are due; firstly, to a limited conception of space, and secondly to the lack of color and light-sensations. In accordance with these origins the author divides surrogate-sensations into a first and second category, examining in detail their importance in the intellectual life of the blind.

LEIPZIG.

F. KIESOW.

NEW BOOKS.

- Die Umwälzung der Wahrnehmungshypothesen durch die mechanische Methode.* H. SCHWARZ. Leipzig, Duncker u. Humblot, 1895. Pp. XX + 213. M. 9.
- Frederick Edward Beneke: The Man and his Philosophy.* F. B. BRANDT. New York, Macmillan & Co., 1895. Pp. 167.
- Untersuchungen über die verschiedenen Moralsysteme.* K. A. LEIMBACH. Fulda, Actiendruckerei, 1895. Pp. VIII + 125.
- Der Begriff des Erhabenen bei Burke und Kant.* G. CANDREA. Strassburg, Goelker, 1894. Pp. 80.
- Studien sur Blinden-Psychologie.* TH. HELLER. In. Diss. Leipzig. (Also in Philos. Studien). 1895. Pp. 130.
- Thinking, Feeling, Doing.* E. W. SCRIPTURE. Meadville, Pa., Flood & Vincent, Chautauqua Press, 1895. Pp. XII + 304.
- Untersuchungen über Farbeninduction.* KR. B-R. AARS. Christiania, Dybwad, 1895. Pp. 15.

- Logik.* W. WUNDT. Bd. II, Abth. 2. *Logik der Geisteswissenschaften.* 2^{te} Auf. Stuttgart, Enk., 1895. M. 15.
- German Kantian Bibliography.* E. ADDICKS. The Philosophical Review; Supplement No. 1. Pp. 253-380.
- La Psychologie des Foules.* G. LE BON. Paris, Alcan, 1895.
- Les Lois psychologiques du Symbolisme.* G. FERRÉRO. Paris, Alcan, 1895.
- Lokalisations-Psychologie: die Lokalisationstheorie angewandt auf psychologische Probleme.* G. HIRTH. With preface by L. Edinger. 2^{te} Auf. Munich, Hirth, 1895. Pp. XXIV + 112.
- Einleitung in die Philosophie.* O. KÜLPE. Leipzig, Hirzel, 1895. Pp. VIII + 276. M. 4.
- Die Schöpfung des Menschen und seine Ideale.* W. HAACKE. Jena, Costenoble, 1895. Pp. X + 487. M. 12.

NOTES.

The death is announced of the distinguished Swiss philosopher, Ch. Sacrétan.

Prof. W. R. Newbold, of the University of Pennsylvania, has become one of the associate editors of the *American Naturalist*.

Dr. J. H. Hyslop has been appointed Professor of Logic and Ethics in Columbia College, New York.

Prof. Stumpf's article in this REVIEW for Jan., 1895, on *Helmholtz and the New Psychology*, has been reprinted in the *Archiv für die Geschichte der Philosophie*.

Dr. J. Allen Gilbert, of Yale, has been made Assistant Professor of Psychology at the University of Iowa. He will have charge of the laboratory work, for which new rooms and appropriations have recently been secured.

E. B. Titchener and J. E. Creighton have been made full professors in the Sage School of Philosophy in Cornell University.

Professor Thomas Henry Huxley died on June 30.

In the *Revue Philosophique* for June, 1895, is to be found a long and admirable account of the late Professor Charcot, by Professor Pierre Janet, under the title 'J. M. Charcot; son œuvre psychologique.'

We are informed that the earlier note in these pages (Vol. II, p. 328) to the effect that Professor Mach, formerly of Prague, had been called to a chair in Psychology in the University of Vienna, is incorrect. The chair which he assumes is that of 'History and Theory of the Inductive Sciences.' Further, Dr. Hillebrand becomes Asst. Professor of Experimental Psychology at Vienna.



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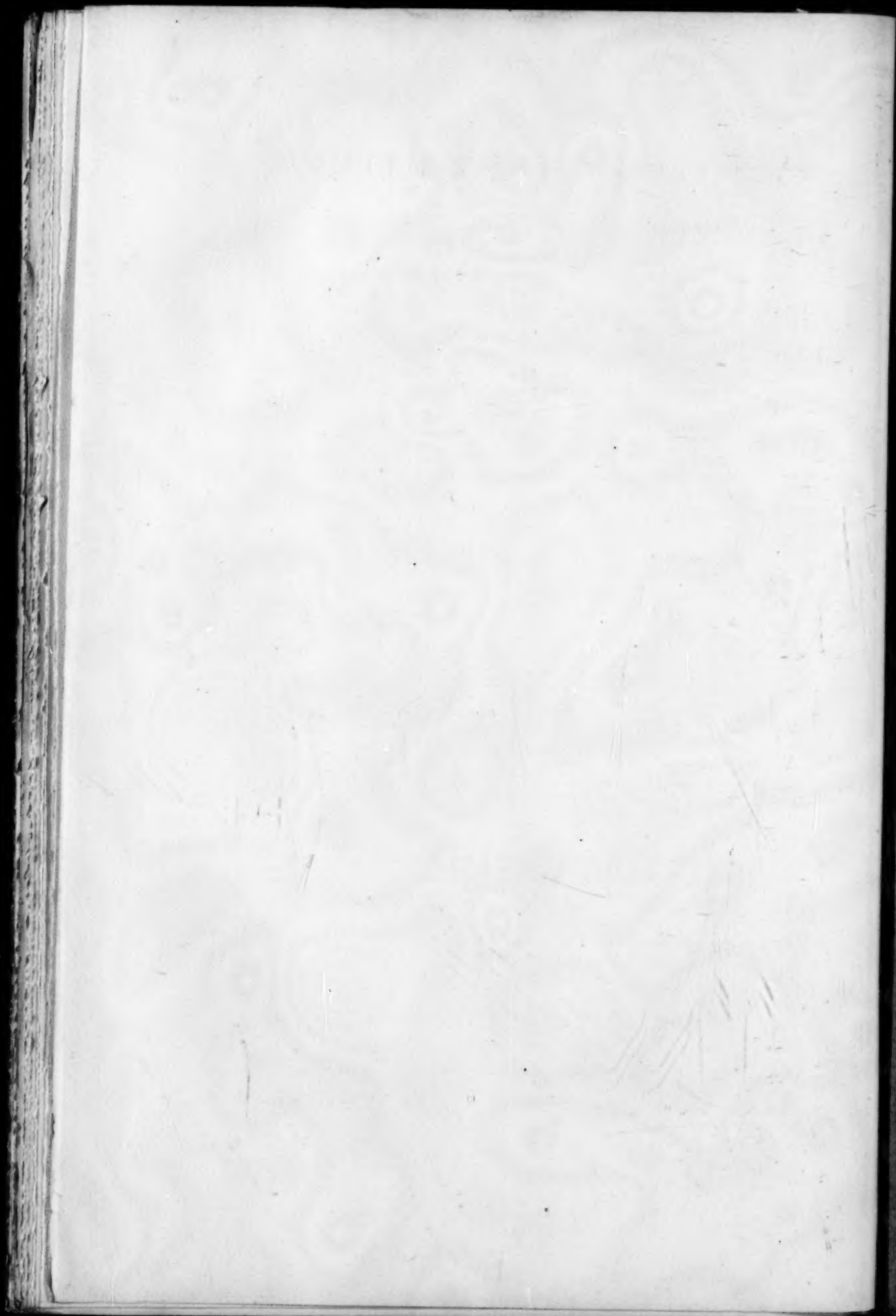
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